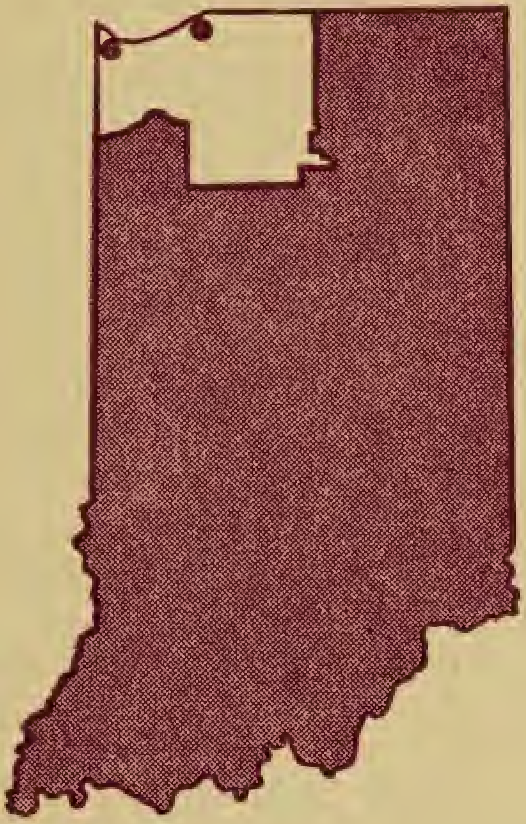
PURDUE UNIVERSITY

ANNOUNCEMENTS FOR THE YEAR 1961-62

NORTHWEST EXTENSION DISTRICT



CLASS SCHEDULES

PURDUE CALUMET CENTER
2233 171st STREET
HAMMOND, INDIANA
PHONE: TILDEN 4-0520

BARKER MEMORIAL CENTER
631 WASHINGTON STREET
MICHIGAN CITY, INDIANA
PHONE: TRIANGLE 2-7293

UNIVERSITY CALENDAR

1961

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1962

JANUARY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

MARCH

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JUNE

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JULY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

First Semester

September 10-12
Orientation for all new students

September 13, 1 p.m.
Classes begin

November 22, 1 p.m.
Thanksgiving vacation begins

November 27, 7 a.m.
Classes resume

December 20, 1 p.m.
Christmas vacation begins

January 3, 1 p.m.
Classes resume

January 20, noon
Classes end

Second Semester

January 29, 1 p.m.
Classes begin

March 24, noon
Spring vacation begins

April 2, 7 a.m.
Classes resume

April 22
Early placement testing

May 30, 1 p.m.
Classes end

June 3
Commencement

Summer Session

June 18, 7 a.m.
Classes begin

July 4
Independence Day Holiday

August 10, 5 p.m.
Classes end

PURDUE UNIVERSITY

Division of University Centers

Northwest Indiana District

CALUMET CENTER
BARKER MEMORIAL CENTER

Announcements for the Year 1961-62

Eighty-seventh Year

LAFAYETTE, INDIANA

PUBLISHED BY THE UNIVERSITY

Purdue Calumet Center
2233 171st Street
Hammond, Indiana
Phone: Tilden 4-0520

Barker Memorial Center
631 Washington Street
Michigan City, Indiana
Phone: Triangle 2-7293

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PURDUE UNIVERSITY

Purdue University, a land-grant institution, extends its programs of study in science, technology, and agriculture through University Centers, which have been established in order to serve better the needs of the people of the state. The off-campus University Centers provide an opportunity for students, in many cases, to live at home and take regular University work. In addition, this state-wide program provides noncredit courses, correspondence instruction, short courses, demonstrations, lectures, conferences, publications, and other formal and informal enterprises for the purpose of making the educational resources of the University available to the people of the state.

Students may take a substantial proportion of a full four-year degree program at a University center. Freshman work in the schools of Engineering; Science, Education, and Humanities; Industrial Management; Pharmacy; Agriculture; Veterinary Science and Medicine; Home Economics; and the Division of Applied Technology is offered at all of the University centers. Sophomore programs of work are offered in a number of fields of engineering, science, and the engineering technologies.

Credit courses carry residence credit (with certain limitations on graduate courses) and are identical in quality and content with courses given on the Lafayette campus. All instructors, full- or part-time, are approved by the heads of the various academic schools and departments. Courses are planned and supervised by the schools and departments. Enrollment in a center is enrollment in Purdue.

The University will offer noncredit classes, of an adult nature, which are within the scope of its teaching facilities. Any interested group may request assistance in the development of a course to meet its particular needs. A member of the extension staff will assist with the planning and operation of such a class.

PROCEDURE FOR ADMISSION

All inquiries regarding admission to a University Center should be addressed to the Admissions Officer of the Center concerned. The first letter of inquiry concerning admissions should:

a. State the amount of school training completed.

b. Outline plans for further education, including field of specialization.

c. Indicate the approximate date to enter Purdue.

d. Request information concerning admission requirements.

e. Request an application form.

When a prospective Purdue student receives his application form, he should fill it out according to the instructions on the form and submit it to his high school principal. The principal will complete the application form and forward it to the appropriate University Center.

High school seniors should file their application forms at the start of their final semester in high school. This enables the University to notify applicants of tentative action before they graduate.

Requirements For Admission

Acceptance for admission will depend on two major factors: subject matter requirements and class standing.

1. **Subject Matter Requirements.** All areas of specialization at Purdue require one unit of algebra, one unit of plane geometry, one unit of laboratory science, three units of English, a unit of social studies, and other courses making a total of not less than 15 units and finally high school graduation. In addition, the Engineering Schools require one-half unit of trigonometry and one-half unit of advanced algebra. Physical Education For Men dispenses with units in algebra and plane geometry as requirements for admission.

Applicants who intend to earn a degree in pharmacy must qualify for admission to the School of Science, Education, and Humanities for their freshman year of prepharmacy. It is urged that applicants planning to enter the School of Pharmacy submit at least two units of science with laboratory work, preferable, from biology, chemistry, and physics, in the order named.

An applicant who plans to earn one of the engineering degrees must qualify for classification as a sophomore in the appropriate school of engineering by satisfactorily completing the freshman program of study prescribed in accordance with his secondary school preparation and his performance on placement tests. The applicant who satisfies the minimum entrance requirements might require more than two semesters to qualify for sophomore classification.

If the freshman program is to be completed in two semesters, it is recommended that the applicant's high school record exceed the minimum requirements and present credit in the following subjects:

English	4 units
History	1 unit

Algebra (including college Algebra)	2 units
Plane Geometry	1 unit
Trigonometry	½ unit
Physics	1 unit
Chemistry	1 unit
Additional English, language, mathematics, and/or social studies	3 units
Other subjects	1½ units

2. **Class Standing:** preference is given to applicants in the upper one-third of their high school graduating class. Those in the middle one-third of their class must meet all entrance requirements. Besides meeting all the requirements, an applicant who does not rank in the upper one-half of his graduating class may be required to take testing and counseling under the direction of the admissions officer before being considered for acceptance.

Nonresident Applicants

Purdue University is unable to accept all qualified applicants who are not residents of the state of Indiana. Qualified nonresident applicants will be considered in numbers consistent with the facilities of the University. The University reserves the right to alter admission requirements for this group as the situation requires.

Entrance Examinations

Nonresident applicants for curricula in Engineering; Science, Education, and Humanties; Home Economics; Industrial Management; Prepharmacy; and Preveterinary Science and Medicine are expected to take College Board examinations. Applicants for curricula in Agriculture, Forestry, Physical Education for Men, and Engineering Technology need not take these examinations. Engineers take the aptitude portion of the tests plus English, advanced mathematics, and chemistry. All others take aptitude tests plus English, intermediate mathematics, and chemistry. If the applicant has not had or is not taking chemistry, the physics tests should be substituted.

Admission With Deficiencies

An upper one-third graduate may be considered for admission with up to one unit of deficiencies if recommended by his high school principal. No one without at least one unit in algebra and one unit in plane geometry will be admitted to engineering regardless of his class standing or test scores.

If an applicant is accepted with a subject deficiency, his admission will be conditional for one year at the end of which his record must justify continuance without further restrictions or reservation.

Transfer Students

An applicant transferring from another college or university must fulfill the following requirements:

1. Submit an application for admission on the prescribed form through the principal of the high school from which he graduated.

2. Forward an official transcript of work done in institutions previously attended.
3. Have earned an average of at least one letter grade higher than the passing grade for all courses previously taken at a recognized college or university.
4. Receipt by the admissions officer of the completed application including all items specified above not later than 15 days before the date of the applicant's registration at Purdue.

Temporary Students

Mature persons who are local residents and who desire to avail themselves of the instruction offered in any of the departments of the University without undertaking one of the regular plans of study and without becoming candidates for degrees may be admitted as temporary students.

Time of Entrance

Purdue University offers instruction during two semesters and a summer session. New students may begin in a program of study with any regularly scheduled registration, which usually takes place three times a year—in September, January and June. Consult the University calendar on the inside front cover of this catalog for definite dates.

Placement Tests

All entering freshmen are required to take a battery of placement tests, which cover English, mathematics, science and other academic fields. These are given for the purpose of placing student in beginning courses at the level for which he is prepared by his previous training. The student who demonstrates exceptional strength on these tests may be permitted to omit certain beginning courses normally required of freshmen students. The student who shows unusual weakness may be assigned to noncredit courses until he is qualified to handle normal college level work.

Grades and Honors:

Instructors will assign each student a grade for each course in which he is enrolled at the close of a session. The student shall be responsible for the completion of all the required work by the time of the last scheduled meeting in the course unless his assignment to the course has been properly canceled. The grade shall indicate the student's achievement with respect to the objectives of the course.

For credit courses

A Highest passing grade
B
C
D Lowest passing grade. Passing minimal objectives of the course.
E Conditional failure, failure to achieve minimal objectives, but only to such limited extent that credit can be obtained by examination or otherwise without repeating the entire course. This grade represents failure in the course unless and until the record is duly changed within one semester. It cannot be changed to a grade higher than a D.

F Failure to achieve minimal obectives of the course. The student must repeat the course satisfactorily in order to establish credit in it.

For zero credit courses

S Satisfactory; meets course objectives.
U Unsatisfactory; does not meet course objectives.

For incomplete

O Incomplete; no grade; a temporary record of work which was interrupted by unavoidable absence or other causes beyond a student's control, and which work was passing at the time it was interrupted. An instructor may require the student to secure the recommendation of the dean of men or the dean of women or their representative, that the circumstances warrant a grade of incomplete. On the record a grade of O will be equivalent to a W unless and until the record is duly changed within one semester.

Directed grades. The registrar is directed to record the following grades and symbols under special circumstances:

W Withdrew; a record of the fact that a student was enrolled in a course and withdrew or canceled the course after the last date for late registration and adding courses.

WF Withdrew failing; a record of course cancellation after the last date for canceling a course without grade, at which time, according to a statement from the instructor, the student was not passing in his work. This grade counts in all respects as a failing grade.

V Visitor; a designation in lieu of any other grade for any student enrolled in a course as a visitor without credit.

SCHEDULE

Barker Memorial Center
Michigan City

DAY CLASSES
Fall 1961

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
CIVIL ENGINEERING						
Slide Rules & Graphs	CE	113	1	1	M 3–4 Th 12–1	$23
Engineering Graphics	CE	118	1	3	TWTh 3–5 F 3–4	$69
CHEMISTRY						
General Chemistry	CHM	111	1	3	M 6–8 Th 9–12	$57
General Chemistry	CHM	115	1	4	MWF 11–12 T 9–12	$72
ENGLISH						
English Composition I	ENGL	101	1	3	MWF 10–11	$45
English Composition I	ENGL	101	2	3	MWF 11–12	$45
Developmental Reading	ENGL	185	1	1	TTh 8–9	$30
Intro. to Literature	ENGL	230	1	3	TTh 2–3 F 4–5	$45
HISTORY						
The U. S. & Its Place in World Affairs	HIST	205	1	3	MWF 8–9	$45
MATHEMATICS						
Gen. College Math I	MA	121	1	3	MWF 2–3	$45
Elem. Math for Engrs. & Sci. I	MA	151	1	5	M to F 1–2	$75
Math for Engrs. & Sci. I	MA	161	1	5	M to F 1–2	$75
MODERN LANGUAGE						
First Course in French	FR	101	1	3	MTh 3–5	$53
PSYCHOLOGY						
Elem. Psychology	PSY	120	1	3	TTh 9–10:15	$45
SPEECH						
Principles of Speech	SP	114	1	3	MWF 9–10	$45
Principles of Speech	SP	114	2	3	TTh 9–10:15	$45

EVENING CLASSES

Fall 1961

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
BUILDING CONSTRUCTION TECHNOLOGY						
Plan Reading	BC	104	1	1	F 6–7	$15
Architectural Drawing I	BC	116	1	2	TTh 7–9:45	$54
Systems of Construction	BC	172	1	2	F 7–9	$30
CHEMISTRY						
General Chemistry	CHM	111	2	3	M 6–8 W 6–9	$57
DRAFTING AND MECHANICAL TECHNOLOGY						
Technical Drawing	DM	108	1	3	M 5:15–8 F 5:15–9	$69
Materials & Processes	DM	180	1	3	Th 7:30–10:15	$45
ECONOMICS						
Principles of Economics	ECON	210	1	3	F 7–10	$45
Elements of Accounting I	ECON	370	1	3	W 7–10	$45
ENGLISH						
English Composition I	ENGL	101	3	3	TTh 8–9:15	$45
Developmental Reading	ENGL	101	2	1	T 6–8	$30
Intro. to Fiction	ENGL	238	1	3	TTh 6:30–8	$45
HISTORY						
Amer. History to 1865	HIST	204	1	3	W 7–10	$45
MATHEMATICS						
Algebra	MA	111	1	3	TTh 5:45–7	$45
MODERN LANGUAGE						
First Course in German	GER	101	1	3	M 8–10 F 7–9	$53
PHILOSOPHY						
Intro. to Philosophy	PHIL	310	1	3	T 7–10	$45
PHYSICAL SCIENCE						
Phys: Mechanics & Heat	PS	136	1	4	M 8–10 W 6–8 W 8–10	$68
PSYCHOLOGY						
Elementary Psychology	PSY	120	2	3	W 7–10	$45
Child Psychology	PSY	235	1	3	W 7–10	$45
SOCIOLOGY						
Intro. Sociology	SOC	100	1	3	M 7–10	$45
ZOOLOGY						
Biology of Animals	ZOOL	160	1	4	T 5–8 M 5–8	$72
Biology of Animals	ZOOL	160	2	4	T 5–8 Th 5–8	$72

DAY CLASSES

Spring 1962

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
CHEMISTRY						
General Chemistry	CHM	112	1	3	MWF 11–12 T 9–12	$57
ENGINEERING						
Fresh. Engr. Lectures	ENGR	100	1	1	M 4–5	$15
ENGLISH						
Developmental Reading	ENGL	185	1	1	TTh 8-9	$30
English Composition II	ENGL	202	1	3	MWF 10–11	$45
English Composition II	ENGL	202	2	3	MWF 11–12	$45
GOVERNMENT						
Intro. to Government	GVMT	101	1	3	MWF 8–9	$45
MATHEMATICS						
Gen. College Math II	MA	122	1	3	MWF 2–3	$45
Elem. Math for Engrs. & Scientists II	MA	152	1	5	M to F 3–4	$75
Math for Engrs. & Sci. II	MA	162	1	5	M to F 1–2	$75
MODERN LANGUAGE						
Second Course in French	FR	102	1	3	MTh 3–5	$53
PHYSICS						
Mechanics	PHYS	152	1	4	MTTh 2–3 Th 9–12	$68
SPEECH						
Principles of Speech	SP	114	1	3	MWF 9–10	$45

EVENING CLASSES

Spring 1962

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
BUILDING CONSTRUCTION TECHNOLOGY						
Building Materials	BC	164	1	3	F 7–10	$45
CHEMISTRY						
General Chemistry	CHM	112	1	3	M 6–8 W 6–9	$57
CIVIL ENGINEERING						
Slide Rules & Graphs	CE	113	1	1	M 6–7 Th 7–8	$23
DRAFTING AND MECHANICAL TECHNOLOGY						
Technical Drawing	DM	108	1	3	M 5:15–8 F 5:15–9	$69
Graphical Computations	DM	156	1	3	M 5:15–8 F 5:15–9	$69
Mechanics of Materials	DM	212	1	4	TTh 7–9	$60
ECONOMICS						
Principles of Economics	ECON	212	1	3	F 7–10	$45
Elements of Accounting II	ECON	371	1	3	W 7–10	$45
ENGLISH						
English Composition I	ENGL	101	1	3	TTh 8–9:30	$45
Developmental Reading	ENGL	185	2	1	Th 6–8	$30
English Composition II	ENGL	202	3	3	TTh 8–9:30	$45
Intro. to Literature	ENGL	231	1	3	TTh 6:30–8	$45
HISTORY						
The U.S. and Its Place in World Affairs	HIST	205	1	3	W 7–10	$45
INDUSTRIAL TECHNOLOGY						
Indust. Organ. & Prod.	IT	104	1	4	TTh 8–10	$60
Business Organization	IT	105	1	2	TTh 8–10	$30
Human Relations in Industry	IT	152	1	2	W 8–10	$30
MATHEMATICS						
Trigonometry	MA	112	1	3	TTh 5:45–7	$45
MODERN LANGUAGE						
Second Course in German	GER	102	1	3	M 8–10 F 7–9	$53
PHYSICAL SCIENCE						
Physics: Electricity, Sound, and Light	PS	176	1	4	M 8–10 W 6–8 W 8–10	$68
PLANT SCIENCES						
Intro. to Plant Life	PLSC	140	1	4	TTh 5–8	$72
PSYCHOLOGY						
Elementary Psychology	PSY	120	1	3	M 7–10	$45
Gen. Social Psychology	PSY	340	1	3	Th 7–10	$45
SOCIOLOGY						
Intro. Sociology	SOC	100	1	3	W 7–10	$45
Social Problems	SOC	220	1	3	M 7–10	$45

SCHEDULE

Calumet Center

Hammond

DAY CLASSES

Fall 1961

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
BUILDING CONSTRUCTION TECHNOLOGY						
Plan Reading	BC	104	1	1	T 11	$15
Architectural Drawing	BC	116	1	2	MWF 8-10	$54
Systems of Construction	BC	172	1	2	Th 10-12	$30
Concrete & Masonry Construction	BC	220	1	3	Th 1 M 12-3 Th 2-5	$69
Architectural Design I	BC	241	1	2	TF 12-3	$54
Elementary Surveying	BC	288	1	2	Sat 8-12	$42
CIVIL ENGINEERING						
Slide Rules & Graphs	CE	113	1	1	MW 12	$23
Engineering Graphics	CE	118	1	3	T 12 MWF 3-5	$69
Engineering Graphics	CE	118	2	3	T 12 MWF 3-5	$69
Engineering Graphics	CE	118	3	3	W 1 TThF 1-3	$69
Engineering Graphics	CE	118	4	3	W 1 MTTh 1-3	$69
CHEMISTRY						
Elementary Chemistry	CHM	100	1	3	MWF 2	$45
General Chemistry	CHM	109	1	4	MWF 11 T 8-11	$72
General Chemistry	CHM	109	2	4	MWF 11 T 11-2	$72
General Chemistry	CHM	111	1	3	MW 11 T 8-11	$57
General Chemistry	CHM	111	2	3	MW 11 T 11-2	$57
General Chemistry	CHM	115	1	4	MWF 8 Th 8-11	$72
General Chemistry	CHM	115	2	4	MWF 8 Th 2-5	$72
General Chemistry	CHM	115	3	4	MWTh 8 W 2-5	$72
General Chemistry	CHM	115	4	4	MW 8 T 9 M 2-5	$72

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
General Chemistry	CHM	115	5	4	MW 8 Th 9 F 2-5	$72
General Chemistry	CHM	116	1	4	MWF 9 Th 2-5	$72
General Chemistry	CHM	116	2	4	MWF 9 Th 8-11	$72
Qualitative Analysis	CHM	226	1	4	WF 9 TTh 3-6	$84
Organic Chemistry	CHM	255	1	3	MWF 10	$45
Organic Chemistry Lab.	CHM	255L	1	1	Th 11-2	$27
DRAFTING AND MECHANICAL TECHNOLOGY						
Technical Drawing	DM	108	1	3	Th 3 MWF 3-5	$69
Technical Drawing	DM	108	2	3	Th 12 MTTh 8-10	$69
Adv. Materials & Processes	DM	200	1	3	TTh 3-4:30	$45
Elem. Machine Design	DM	220	1	2	MWF 3-5	$54
ECONOMICS						
Prin. of Economics	ECON	210	1	3	MWF 4	$45
ELECTRICAL ENGINEERING						
Circuits I	EE	203	1	5	TWThF 1 T 2-5	$87
ELECTRICAL TECHNOLOGY						
Electronics I-Circuits	ET	104	1	4	TTh 1 F 3 Th 2-5	$72
Electronics I-Circuits	ET	104	2	4	TTh 1 F 3 Th 8-11	$72
AC & DC Mach. & Controls	ET	208	1	2	M 10-12	$30
Elect III-Radio Circuits	ET	236	1	5	TWThF 10 M 1-4	$87
ENGINEERING						
Fresh. Engr. Lectures	ENGR	100	1	1	Th 9	$15
Fresh. Engr. Lectures	ENGR	100	2	1	Th 11	$15
ENGINEERING SCIENCE						
Basic Mechanics I	ES	205	1	3	TTh 9 W 2	$45
ENGLISH						
English Composition I	ENGL	101	1	3	MWF 10	$45
English Composition I	ENGL	101	2	3	MWF 10	$45
English Composition I	ENGL	101	3	3	MWF 11	$45
English Composition I	ENGL	101	4	3	MWF 1	$45
English Composition I	ENGL	101	5	3	MWF 9	$45
English Composition I	ENGL	101	6	3	MWF 9	$45
English Composition I	ENGL	101	7	3	MWF 11	$45
English Composition I	ENGL	101	8	3	MWF 1	$45
English Composition	ENGL	103	1	3	MWF 10	$45

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Developmental Reading	ENGL	185	1	1	TTh 11	$30
Developmental Reading	ENGL	185	2	1	TTh 1	$30
Developmental Reading	ENGL	185	3	1	TTh 2	$30
Developmental Reading	ENGL	182	4	1	TTh 3	$30
English Composition II	ENGL	202	1	3	MWF 4	$45
English Composition II	ENGL	202	2	3	MWF 4	$45
Intro. to Literature	ENGL	230	1	3	MWF 3	$45

GENERAL STUDIES

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Tech. Institute Orientation Lectures	GN	100	1	1	T 12	$15
Fund. of Pract. Speaking	GN	204	1	2	Th 1-3	$30
Fund. of Pract. Speaking	GN	204	2	2	Th 1-3	$30
Tech. Report Writing	GN	220	1	2	T 1-3	$30
Tech. Report Writing	GN	220	2	2	T 1-3	$30

GOVERNMENT

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Intro. to Government	GOVT	101	1	3	MWF 4	$45

HISTORY

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Early Civilization	HIST	200	1	3	MWF 3	$45
Amer. History to 1865	HIST	204	1	3	MWF 11	$45
Amer. History to 1865	HIST	204	2	3	MWF 1	$45
Amer. History to 1865	HIST	204	3	3	MWF 9	$45
Amer. History to 1865	HIST	204	4	3	MWF 2	$45
The U.S. & Its Place in World Affairs	HIST	205	1	3	MWF 11	$45

INDUSTRIAL TECHNOLOGY

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Ind. Organization & Prod.	IT	104	1	4	WF 1-3	$60

MATHEMATICS

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Algebra	MA	111	1	3	MWF 8	$45
Algebra	MA	111	2	3	MWF 8	$45
Algebra	MA	111	3	3	MWF 9	$45
Algebra	MA	111	4	3	MWF 2	$45
Trigonometry	MA	112	1	3	MWF 9	$45
Gen. College Math I	MA	121	1	3	MWF 2	$45
Gen. College Math I	MA	121	2	3	MWF 3	$45
Elem. Math for Engrs. & Sci. I	MA	151	1	5	M to F 1	$75
	MA	151	2	5	M to F 1	$75
Elem. Math for Engrs. & Sci. I	MA	151	3	5	M to F 10	$75
	MA	151	4	5	M to F 10	$75
Elem. Math for Engrs. & Sci. II	MA	152	1	5	M to F 1	$75
	MA	152	2	5	M to F 10	$75
Math for Engrs. & Sci. I	MA	161	1	5	M to F 1	$75
Math for Engrs. & Sci. I	MA	161	2	5	M to F 1	$75
Math for Engrs. & Sci. I	MA	161	3	5	M to F 10	$75
Math for Engrs. & Sci. II	MA	162	1	5	M to F 11	$75
Math for Engrs. & Sci. II	MA	162	2	5	M to F 11	$75
Math for Engrs. & Sci. III	MA	261	1	4	T to F 11	$60
Math for Engrs. & Sci. IV	MA	262	1	4	T to F 11	$60

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
MODERN LANGUAGES						
First Course in French	FR	101	1	3	MTWF 2	$53
First Course in German	GER	101	2	3	MTWF 3	$53
PHYSICS						
Mechanics	PHYS	152	1	4	F 12 MWTh 1 T 1-3	$68
Mechanics	PHYS	152	2	4	Th 1 F 12 MW 2 T 3-5	$68
General Physics	PHYS	220	1	4	MWF 2 T 8-11	$72
Heat, Sound & Elect.	PHYS	251	1	5	M to F 10 M 1-3	$83
Heat, Sound & Elect.	PHYS	251	2	5	M to F 10 M 3-5	$83
Optics & Modern Physics	PHYS	262	1	5	M to F 8 F 1-3	$83
PHYSICAL EDUCATION						
Physical Education	PEW	100	1	1	Th 9-11	$23
Personal Hygiene	PEW	103	1	1	Th 8	$15
Phys. Ed. Curricular Act.	PEM	103	1	3	MW 8-10 F 2	$61
Phys. Ed. Orientation-Hist.	PEM	105	1	2	T 1-3	$30
Physical Activities	PEM	112	1	1	F 8-11	$27
Physical Activities	PEM	112	2	1	WF 12:30-2	$27
Physical Activities	PEM	112	3	1	M 3-6	$27
Physical Activities	PEM	112	4	1	F 3-6	$27
Physical Activities	PEM	112	5	1	W 3-6	$27
Physical Activities	PEM	112	6	1	T 3-6	$27
Physical Activities	PEM	112	7	1	Th 3-6	$27
Sports Officiating	PEM	151	1	2	M 2 W 12-3	$42
PHYSICAL SCIENCE						
Intro. to Chemistry	PS	120	1	3	TTh 11 T 2-5	$57
Intro. to Chemistry	PS	120	2	3	M 3-6 TTh 11	$57
Physics: Mechanics	PS	136	1	4	TF 1 W 12-2 Th 1-3	$68
Physics: Mechanics	PS	136	2	4	TF 1 W 3-5 Th 1-3	$68
Physics: Elect., Sound & Light	PS	176	1	4	T 9 W 8 TW 10 F 10-12	$68

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Physics: Elect., Sound & Light	PS	176	2	4	T 9 W 8 TW 10 F 8-10	$68
PSYCHOLOGY						
Elem. Psychology	PSY	120	1	3	MWF 10	$45
Elem. Psychology	PSY	120	2	3	MWF 4	$45
SOCIOLOGY						
Intro. Sociology	SOC	100	1	3	MWF 10	$45
SPEECH						
Principles of Speech	SPE	114	1	3	MWF 10	$45
Principles of Speech	SPE	114	2	3	MWF 10	$45
Principles of Speech	SPE	114	3	3	MWF 11	$45
Principles of Speech	SPE	114	4	3	MWF 1	$45
Principles of Speech	SPE	114	5	3	MWF 9	$45
Principles of Speech	SPE	114	6	3	MWF 3	$45
ZOOLOGY						
Biology of Animals	ZOOL	160	1	4	MWF 1 Th 8-11	$72
Biology of Animals	ZOOL	160	2	4	MWF 1 Th 12-3	$72
Biology of Animals	ZOOL	160	3	4	MWF 1 Th 3-6	$72
General Zoology	ZOOL	161	1	4	MW 10 MW 8-10	$76

EVENING CLASSES

Fall 1961

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
BUILDING CONSTRUCTION TECHNOLOGY						
Plan Reading	BC	104	2	1	Th 7	$15
Architectural Drawing I	BC	116	2	2	MTh 8-11	$54
Systems of Construction	BC	172	2	2	M 6-8	$30
Building Regulations	BC	204	1	2	T 6-8	$30
Concrete & Masonry	BC	220	2	3	Th 7 MWTh 8-10	$69
Architectural Projections	BC	236	1	2	TF 8-11	$54
Structures	BC	265	1	3	MW 6:30-8	$45
Elementary Surveying	BC	288	1	2	Sat 8-12am	$42
CHEMISTRY						
Elementary Chemistry	CHM	100	2	3	Th 6 M 6-8	$45
General Chemistry	CHM	115	6	4	M 7-11 Th 6-8	$72
General Chemistry	CHM	116	3	4	W 7-11 M 8-10	$72
Organic Chemistry	CHM	551	1	4	T 6:30-11 F 6:30-10	$92
CHEMICAL AND METALLURGICAL TECHNOLOGY						
Ind. Chemistry: Qualitative	CM	212	1	3	Th 7-11 M 8-11	$69
Physical Metallurgy	CM	228	1	4	M 6-8 W 7-11	
Heat Transfer	CM	240	1	3	T 7-11 Th 6	$57
DRAFTING AND MECHANICAL TECHNOLOGY						
Technical Drawing	DM	108	3	3	Th 7-11 M 8-11	$69
Technical Drawing	DM	108	4	3	F 7-11 T 8-11	$69
Graphical Computations	DM	156	1	3	T 7-11 F 8-11	$69
Adv. Materials & Processes	DM	200	2	3	MTh 6:30-8	$45
Machine Elements	DM	216	1	3	TF 6:30-8	$45
Elem. Machine Design	DM	220	2	2	MTh 8-11	$54
Strength of Materials	DM	252	1	4	TF 8-10	$60
ECONOMICS						
Principles of Economics	ECON	210	2	3	TF 6:30-8	$45
Elements of Accounting I	ECON	370	1	3	W 6:30-9:30	$45
Legal Background for Bus.	ECON	470	1	3	W 6:30-9:30	$45
ELECTRICAL TECHNOLOGY						
Electronics I-Circuits	ET	104	3	4	Th 7 T 6-8 Th 8-11	$72
Electrical Circuits	ET	176	1	4	W 7 W 8-11 F 6-8	$72

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Power Distribution	ET	228	1	2	Th 8-10	$30
Elect. III-Radio Circuits	ET	236	2	5	MTh 6-8 M 8-11	$87
Elect. Power Blueprints & Diagrams	ET	252	1	2	W 7 W 8-11	$42
Automation & Electronic Control	ET	272	2	5	MTh 6-8 M 8-11	$87
Electronic Trouble Shoot.	ET	276	1	2	TF 8-11	$54
ENGLISH						
English Composition I	ENGL	101	9	3	MTh 6:30-8	$45
English Composition I	ENGL	101	10	3	MTh 8-9:30	$45
English Composition I	ENGL	101	11	3	TF 6:30-8	$45
Developmental Reading	ENGL	185	5	1	MTh 7	$30
English Composition II	ENGL	202	3	3	MTh 8-9:30	$45
Intro. to Literature	ENGL	231	1	3	TF 8-9:30	$45
The American Novel	ENGL	572	1	3	W 6:30-9:30	$54
GENERAL STUDIES						
Engl. Grammar & Comp.	GN	104	1	2	T 6-8	$30
Engl. Grammar & Comp.	GN	104	2	2	F 8-10	$30
Psychology	GN	120	1	2	F 6-8	$30
Psychology	GN	120	2	2	T 8-10	$30
Fund. of Tech. Writing	GN	152	1	2	W 6-8	$30
Fund. of Pract. Speaking	GN	204	3	2	T 8-10	$30
Fund. of Pract. Speaking	GN	204	4	2	F 6-8	$30
Tech. Report Writing	GN	220	3	2	W 8-10	$30
Tech. Report Writing	GN	220	4	2	W 6-8	$30
Democratic Government	GN	232	1	2	Th 8-10	$30
Economics of Industry	GN	260	1	2	W 6-8	$30
Conference Speaking	GN	264	1	2	W 8-10	$30
Elements of Law	GN	268	1	2	MTh 6:30-8	$45
GOVERNMENT						
International Relations	GVMT	331	1	3	MTh 6:30-8	$45
HISTORY						
The U.S. & Its Place in World Affairs	HIST	205	6	3	MTh 8-9:30	$45
INDUSTRIAL TECHNOLOGY						
Ind. Organization & Prod.	IT	104	2	4	TF 8-10	$60
Business Organization	IT	105	2	2	TF 8-10	$30
Human Relations in Ind.	IT	152	1	2	W 8-10	$30
Fund. of Prod. Cost	IT	244	1	2	TF 8-10	$42

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
MATHEMATICS						
Plane Geometry	MA	2	1	0	TWF 8-9:40	$75
Industrial Math I	MA	10	1	4	TF 6-8	$60
Industrial Math II	MA	20	1	4	TF 6-8	$60
Algebra	MA	111	5	3	Th 6 M 6-8	$45
Algebra	MA	111	6	3	F 6 T 6-8	$45
Trigonometry	MA	112	2	3	T 6 F 6-8	$45
Trigonometry	MA	112	3	3	MTh 8-9:30	$45
Algebra	MA	115	1	4	MTh 6-8	$60
Analytic Geometry	MA	116	1	4	TF 8-10	$60
Calculus I	MA	241	1	4	TF 6-8	$60
Calculus II	MA	242	1	4	TF 8-10	$60
Partial Differential Equations & Appl.	MA	520	1	3	MTh 6:30-8	$54
MODERN LANGUAGE						
First Course in French	FR	101	2	3	TF 6 TF 7	$53
First Course in German	GER	101	1	3	MTh 6 MTh 7	$53
Third Course in German	GER	203	1	3	MTh 6 MTh 7-7:30	$45
PHILOSOPHY						
Intro. to Philosophy	PHIL	310	1	3	W 6:30-9:30	$45
PHYSICS						
Mechanics	PHYS	152	3	4	M 8-10 TTh 8-10	$68
Survey of Modern Physics	PHYS	542	1	3	W 6:30-9:30	$54
PHYSICAL SCIENCE						
Intro. to Chemistry	PS	120	3	3	W 8-10 M-8-11	$57
Intro. to Chemistry	PS	120	4	3	W 8-10 F 8-11	$57
Phys: Mechanics & Heat	PS	136	3	4	Th 8-10 MW 8-10	$68
Phys: Mechanics & Heat	PS	136	4	4	Th 8-10 M 8-10 W 6-8	$68
Slide Rule	PS	168	1	1	T 7	$15
Physics: Elect., Sound & Light	PS	176	3	4	T 8-10 WF 8-10	$68
Physics: Elect., Sound & Light	PS	176	4	4	T 8-10 W 8-10 F 6-8	$68
Fund. of Quality Control	PS	204	1	2	M 6-8	$30

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
PSYCHOLOGY						
Elementary Psychology	PSY	120	3	3	MTh 6:30-8	$45
Child Psychology	PSY	235	1	3	W 6:30-9:30	$45
Mental Hygiene in Educ.	PSY	537	1	3	MTh 8-9:30	$54
SOCIOLOGY						
Intro. Sociology	SOC	100	2	3	W 7-10	$45
SPEECH						
Principles of Speech	SPE	114	7	3	TF 8-9:30	$45
ZOOLOGY						
Biology of Animals	ZOOL	160	3	4	TF 6:30-8 Th 8-11	$72
Anatomy	ZOOL	260	1	3	M 8-11 Th 8-10	$57

DAY CLASSES
Spring 1962

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
BUILDING CONSTRUCTION TECHNOLOGY						
Frame Construction	BC	160	1	3	M 3 TTh 2–5	$69
Building Materials	BC	164	1	3	WF 3–4:30	$45
Architectural Design II	BC	242	1	2	TTh 11–2	$54
Specifications & Contract Documents	BC	276	1	2	WF 1	$30
CHEMISTRY						
Elementary Chemistry	CHM	100	1	3	MWF 2	$45
Gen. Chem. with Qualitative Analysis	CHM	110	1	4	MW 11 TTh 11–2	$84
Gen. Chem. with Qualitative Analysis	CHM	110	2	4	MW 11 MW 8–11	$84
General Chemistry	CHM	111	1	3	TTh 1 T 2–5	$57
General Chemistry	CHM	112	1	3	MW 11 T 8–11	$57
General Chemistry	CHM	112	2	3	MW 11 T 11–2	$57
General Chemistry	CHM	115	1	4	MWF 9 Th 2–5	$72
General Chemistry	CHM	115	2	4	MWF 9 Th 8–11	$72
General Chemistry	CHM	116	1	4	MWF 8 Th 2–5	$72
General Chemistry	CHM	116	2	4	MWF 8 Th 8–11	$72
General Chemistry	CHM	116	3	4	MWTh 8 M 2–5	$72
General Chemistry	CHM	116	4	4	MW 8 W 2–5 Th 9	$72
Intro. to Quantitative Analysis	CHM	227	1	4	WF 8 T 3–6 Th 2–5	$84
Organic Chemistry	CHM	256	1	3	MWF 10	$45
Organic Chemistry Lab	CHM	256L	1	1	Th 8–11	$27
CHEMICAL ENGINEERING						
Chem. Engr. Calculations	CHME	203	1	4	Th 12 TW 1–3	$68

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
CIVIL ENGINEERING						
Slide Rules & Graphs	CE	113	1	1	MTh 12	$23
Engineering Graphics	CE	118	1	3	T 12 MWF 3–5	$69
Engineering Graphics	CE	118	2	3	T 12 MWF 3–5	$69
Engineering Graphics	CE	118	3	3	T 12 TThF 1–3	$69
Engineering Graphics	CE	118	4	3	T 12 MWF 1–3	$69
DRAFTING AND MECHANICAL TECHNOLOGY						
Technical Drawing	DM	108	1	3	T 10 MTTh 3–5	$69
Graphical Computations	DM	156	1	3	F 10 TThF 8–10	$69
Materials & Processes	DM	180	1	3	MWF 12	$45
Mechanics of Materials	DM	212	1	4	MW 8–10	$60
Mech. Stat. & Dynamics	DM	224	1	4	MW 8–10	$60
Applied Machine Design	DM	292	1	2	MTTh 3–5	$54
ECONOMICS						
Principles of Economics	ECON	210	1	3	MWF 3	$45
Principles of Economics	ECON	212	1	3	MWF 4	$45
ELECTRICAL ENGINEERING						
Circuits I	EE	203	1	4	M 11 TTh 1 F 12 T 2–5	$72
Circuits II	EE	204	1	4	MTWTh 10 W 12–3	$72
ELECTRICAL TECHNOLOGY						
Electronics II—Semi-Cond.	ET	156	1	3	WF 1 M 2–5	$57
Electrical Circuits	ET	176	1	4	M 1 W 9 F 2 T 8–11	$72
Elect. IV—Transmitters	ET	256	1	3	TW 9 F 2–5	$57
Elect. Measurements	ET	264	1	4	TThF 1 Th 2–5	$72
Automation & Elect. Cont.	ET	272	1	5	TWThF 11 F 8–11	$87
Elect. Trouble Shooting	ET	276	1	2	MTh 8–11	$54
ENGINEERING						
Fresh. Engr. Lectures	ENGR	100	1	1	Th 9	$15
ENGINEERING SCIENCE						
Basic Mechanics I	ES	205	1	3	MWF 9	$45
Basic Mechanics II	ES	206	1	3	MTTh 12	$45

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
ENGLISH						
English Composition I	ENGL	101	1	3	MWF 10	$45
English Composition I	ENGL	101	2	3	MWF 10	$45
English Composition I	ENGL	101	3	3	MWF 3	$45
English Composition I	ENGL	101	4	3	MWF 1	$45
English Composition I	ENGL	101	5	3	MWF 9	$45
English Composition I	ENGL	101	6	3	MWF 9	$45
English Composition	ENGL	103	1	3	TTh 8–9:30	$45
Developmental Reading	ENGL	185	1	1	TTh 10	$30
Developmental Reading	ENGL	185	2	1	TTh 11	$30
Developmental Reading	ENGL	185	3	1	TTh 1	$30
Developmental Reading	ENGL	185	4	1	TTh 4	$30
English Composition II	ENGL	202	1	3	MWF 10	$45
English Composition II	ENGL	202	2	3	MWF 4	$45
Intro. to Literature	ENGL	231	1	3	MWF 3	$45
Great American Books	ENGL	250	1	3	MWF 3	$45
Bus. Writing: Engr. Appl.	ENGL	421	1	3	MWF 2	$45
GENERAL STUDIES						
Fund. of Tech. Writing	GN	152	1	2	Th 10–12	$30
Fund. of Tech. Writing	GN	152	2	2	Th 1–3	$30
Fund. of Practical Spk.	GN	204	1	2	Th 8–10	$30
Economics of Industry	GN	260	1	2	M 1–3	$30
Elements of Law	GN	268	1	3	WF 3–4:30	$45
GOVERNMENT						
Intro. to Gvmt.	GVMT	101	1	3	MWF 4	$45
International Relations	GVMT	331	1	3	MWF 4	$45
HISTORY						
Dev. of Modern Civilization	HIST	201	1	3	MWF 3	$45
The U. S. and Its Place in World Affairs	HIST	205	1	3	MWF 10	$45
	HIST	205	2	3	MWF 11	$45
The U. S. and Its Place in World Affairs	HIST	205	3	3	MWF 3	$45
	HIST	205	4	3	MWF 9	$45
	HIST	205	5	3	MWF 2	$45
INDUSTRIAL TECHNOLOGY						
Human Relations in Ind.	IT	152	1	2	W 1–3	$30
MATHEMATICS						
Algebra	MA	111	1	3	MWF 9	$45
Algebra	MA	111	2	3	MWF 9	$45
Trigonometry	MA	112	1	3	MWF 8	$45
Trigonometry	MA	112	2	3	MWF 8	$45
Trigonometry	MA	112	3	3	MWF 2	$45
Gen. College Math I	MA	121	1	3	MWF 2	$45
Gen. College Math II	MA	122	1	3	MWF 2	$45
Gen. College Math II	MA	122	2	3	MWF 3	$45
Elem. Math for Engrs. & Scientists I	MA	151	1	5	M to F 1	$75
Elem. Math for Engrs. & Scientists II	MA	152	1	5	M to F 1	$75
	MA	152	2	5	M to F 1	$75

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
Elem. Math for Engrs. & Scientists II	MA	152	3	5	M to F 10	$75
	MA	152	4	5	M to F 10	$75
Math for Engrs. & Sci. I	MA	161	1	5	M to F 1	$75
Math for Engrs. & Sci. II	MA	162	1	5	M to F 11	$75
Math for Engrs. & Sci. II	MA	162	2	5	M to F 11	$75
Math for Engrs. & Sci. II	MA	162	3	5	M to F 9	$75
Math for Engrs. & Sci. III	MA	261	1	4	T to F 11	$60
Math for Engrs. & Sci. IV	MA	262	1	4	T to F 11	$60
MECHANICAL ENGINEERING						
Thermodynamics I	ME	200	1	3	MWF 8	$45
MODERN LANGUAGE						
Second Course in French	FR	102	1	3	MTWF 2	$53
First Course in German	GER	101	1	3	TF 5 TF 6	$53
Second Course in German	GER	102	1	3	MTWF 3	$53
PHYSICS						
Mechanics	PHYS	152	1	4	TWTh 1 F 12 T 2–4	$68
Mechanics	PHYS	152	2	4	TWTh 1 F 12 T 4–6	$68
Mechanics	PHYS	152	3	4	TTh 1 WF 10 T 11–1	$68
General Physics	PHYS	221	1	4	MWF 2 T 8–11	$72
Heat, Sound & Elect.	PHYS	251	1	5	M to F 10 M 1–3	$83
Heat, Sound & Elect.	PHYS	251	2	5	M to F 10 M 3–5	$83
Optics & Modern Physics	PHYS	262	1	5	M to F 9 F 1–3	$83
PHYSICAL EDUCATION						
Physical Education	PEW	100	1	1	Th 8–10	$23
Personal Hygiene	PEW	103	1	1	Th 10	$15
Physical Educ. Cur. Act.	PEM	104	1	3	T 1 MW 8–10	$61
Physical Activities	PEM	112	1	1	F 8–11	$27
Physical Activities	PEM	112	2	1	MW 1–2:30	$27
Physical Activities	PEM	112	3	1	W 3–6	$27
Physical Activities	PEM	112	4	1	M 3-6	$27
Physical Activities	PEM	112	5	1	T 3–6	$27
Physical Activities	PEM	112	6	1	Th 3–6	$27
Physical Activities	PEM	112	7	1	F 3–6	$27
Phys. Educ. Rhythmic Act.	PEM	204	1	2	T 2 Th 1–3	$38

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
PHYSICAL SCIENCE						
Intro. to Chemistry	PS	120	1	3	TTh 2 F 2–5	$57
Physics: Mechanics	PS	136	1	4	M 10 M 11 ThF 10–12	$68
Physics: Mechanics	PS	136	2	4	M 10 M 11 Th 10–12 F 8-10	$68
Slide Rule	PS	168	1	1	T 11	$15
Physics: Elect., Sound & Light	PS	176	1	4	MTF 1 W 11 W 12–2	$68
Physics: Elect., Sound & Light	PS	176	2	4	MTF 1 W 11 W 3–5	$68
PLANT SCIENCE						
Intro. to Plant Life	PLSC	140	1	4	MWF 1 Th 8–11	$72
Intro. to Plant Life	PLSC	140	2	4	MWF 1 Th 12–3	$72
Intro. to Plant Life	PLSC	140	3	4	MWF 1 Th 3–6	$72
PSYCHOLOGY						
Elem. Psychology	PSY	120	1	3	MWF 10	$45
Elem. Psychology	PSY	120	2	3	MWF 4	$45
SOCIOLOGY						
Social Problems	SOC	220	1	3	MWF 10	$45
SPEECH						
Principles of Speech	SPE	114	1	3	MWF 10	$45
Principles of Speech	SPE	114	2	3	MWF 10	$45
Principles of Speech	SPE	114	3	3	MWF 1	$45
Principles of Speech	SPE	114	4	3	MWF 9	$45
Principles of Speech	SPE	114	5	3	MWF 11	$45
ZOOLOGY						
Comparative Anatomy of Vertebrates	ZOOL	162	1	4	T 10 F 11 MW 8-11	$84

EVENING CLASSES

Spring 1962

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
BUILDING CONSTRUCTION TECHNOLOGY						
Frame Construction	BC	160	2	3	T 8–11 F 7–11	$69
Building Materials	BC	164	2	3	T 6–8 F 6	$45
Structures II	BC	266	1	3	MW 8–10 Th 8–11	$69
Quantity Survey	BC	280	1	3	T 8–10 F 8–11	$57
Heating, Ventilating, Air Cond. & Illumination	BC	284	1	2	M 6–8	$15
CHEMISTRY						
Elementary Chemistry	CHM	100	2	3	M 8–9:30 Th 8–9:30	$45
General Chemistry	CHM	115	3	4	M 7–11 W 8–10	$72
General Chemistry	CHM	116	5	4	M 8–10 W 7 W 8–11	$72
Organic Chemistry	CHM	552	1	4	T 6:30-11 Th 6:30–10	$92
CHEMICAL AND METALLURGICAL TECHNOLOGY						
Industrial Chemistry	CM	154	1	4	M 7–11 W 8–10	$72
Ferrous Metallurgy	CM	184	1	3	M 6 W 6–8	$45
Inudstrial Chemistry: Quantitative	CM	252	1	3	W 8–11 M 7–11	$69
Non-Ferrous Metallurgy	CM	280	1	2	W 6–8	$30
Metallography	CM	284	1	3	T 8–11 F 7–11	$69
CIVIL ENGINEERING						
Slide Rules & Graphs	CE	113	2	1	MF 7	$23
Engineering Graphics	CE	118	5	3	MWF 8–10 7	$69
DRAFTING AND MECHANICAL TECHNOLOGY						
Technical Drawing	DM	108	2	3	M 8–11 Th 7–11	$69
Technical Drawing	DM	108	3	3	T 7–11 F 8–11	$69
Graphical Computations	DM	156	2	3	M 7–11 Th 8–11	$69
Materials & Processes	DM	180	2	3	M 6 Th 6–8	$45
Mechanics of Materials	DM	212	2	4	MTh 8-10	$60
Mechanics: Statics & Dynamics	DM	224	2	4	MTh 8-10	$60
Mechanical Analysis	DM	294	1	4	T 8–10 Th 6–8	$60
Applied Machine Design	DM	292	2	2	TF 8–11	$54

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
ECONOMICS						
Elements of Accounting II	ECON	371	1	3	W 6:30–9:30	$45
ELECTRICAL TECHNOLOGY						
Electronics I—Circuits	ET	104	1	4	W 6–8 F 7–11	$72
Electronics II—Semi-Cond.	ET	156	2	3	M 8–11 Th 6–8	$57
Electrical Circuits	ET	176	2	4	T 7–11 Th 8–10	$72
AC and DC Machines & Controls	ET	208	1	2	M 8–10	$30
Electrical Machines	ET	212	1	5	M 6–8 W 6–11	$87
Electronics IV—Transmit.	ET	256	2	3	T 8–11 Th 8–10	$57
Elect. Measurements	ET	264	2	4	T 8–10 Th 7–11	$72
Control of Elect. Motors	ET	268	1	4	TF 6–8	$60
ENGLISH						
English Composition I	ENGL	101	7	3	MTh 6:30–8	$45
English Composition I	ENGL	101	8	3	TF 6:30–8	$45
English Composition	ENGL	103	2	3	MTh 6:30–8	$45
Developmental Reading	ENGL	185	5	1	MTh 8	$30
English Composition II	ENGL	202	3	3	TF 8–9:30	$45
Intro. to Literature	ENGL	230	1	3	TF 6:30–8	$45
American Humor	ENGL	456	1	3	W 6:30–9:30	$45
ENGINEERING SCIENCE						
Basic Mechanics I	ES	205	1	3	TF 6:30–8	$45
GENERAL STUDIES						
English Grammar & Comp.	GN	104	1	2	M 8–10	$30
Psychology	GN	120	1	2	F 6–8	$30
Fund. of Tech. Writing	GN	152	3	2	W 6–8	$30
Fund. of Tech. Writing	GN	152	4	2	Th 8–10	$30
Fund. of Practical Spk.	GN	204	2	2	T 6–8	$30
Fund. of Practical Spk.	GN	204	3	2	Th 8–10	$30
Tech. Report Writing	GN	220	1	2	W 8–10	$30
Tech. Report Writing	GN	220	2	2	W 6–8	$30
Democratic Government	GN	232	1	2	Th 6–8	$30
Economics of Industry	GN	260	2	2	W 6–8	$30
Conference Speaking	GN	264	1	2	W 8–10	$30
GOVERNMENT						
Intro. to Government	GVMT	101	2	3	MTh 8–9:30	$45
Contemporary International Problems	GVMT	532	1	3	W 6:30–9:30	$54

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
HISTORY						
Early Civilization	HIST	200	2	3	MTh 6:30–8	$45
INDUSTRIAL TECHNOLOGY						
Ind. Organization & Prod.	IT	104	1	4	TF 8–10	$60
Business Organization	IT	105	1	2	TF 8–10	$30
Human Relations in Indus.	IT	152	2	2	W 8–10	$30
Human Relations in Indus.	IT	152	3	2	Th 6-8	$30
Industrial Safety	IT	212	1	2	M 8–10	$30
Prod. Planning & Control	IT	227	1	3	MW 6:30–8	$45
Prod. Cost Analysis	IT	248	1	2	MTh 6-8	$42
Plant Layout	IT	268	1	3	T 8–11 F 8–10	$57
Ind. Tech. Case Problems	IT	296	1	2	Th 8–10	$30
Materials Handling	IT	312	1	3	W 6:30–9:30	$45
Legislation Affecting Ind. Relations	IT	368	1	4	TF 6–8	$60
MATHEMATICS						
Plane Geometry	MA	2	1	0	TWF 8–9:30	$75
Industrial Math. I	MA	10	1	4	TF 6–8	$60
Industrial Math. II	MA	20	1	4	MTh 6–8	$60
Industrial Math. III	MA	30	1	4	TF 6–8	$60
Algebra	MA	111	3	3	M 6–8 Th 6	$45
Algebra	MA	111	4	3	T 6 F 6–8	$45
Trigonometry	MA	112	4	3	M 6 Th 6–8	$45
Trigonometry	MA	112	5	3	TF 6:30–8	$45
Analytic Geometry	MA	116	1	4	TF 8–10	$60
Calculus I	MA	241	1	4	TF 6–8	$60
Calculus II	MA	242	1	4	TF 8–10	$60
Differential Eq. & Applications	MA	421	1	3	MTh 8–9:30	$45
Applied Theory of Complex Functions	MA	525	1	3	MTh 6:30–8	$54
MODERN LANGUAGE						
Second Course In French	FR	102	2	3	TF 6 TF 7	$53
First Course In German	GER	101	1	3	TF 5 TF 6	$53
Second Course in German	GER	102	2	3	MTh 6 MTh 7	$53
Fourth Course In German	GER	204	2	3	MTh 6:30–7 MTh 7	$45

Course	Dept.	No.	Div.	Credit	Classes Meet	Fee
PHILOSOPHY						
Philosophy: Ethical & Aesthetic Values	PHIL	311	1	3	W 6:30–9:30	$45
PHYSICS						
Heat, Sound & Elect.	PHYS	251	3	5	Th 8–10 M 8–11 T 8–10	$83
Survey of Modern Physics II	PHYS	549	1	3	W 6:30-9:30	$54
PHYSICAL SCIENCE						
Intro. to Chemistry	PS	120	2	3	T 8–11 F 8–10	$57
Intro. to Chemistry	PS	120	3	3	W 8–11 F 8–10	$57
Physics: Mechanics	PS	136	3	4	T 8–10 WF 8–10	$68
Physics: Mechanics	PS	136	4	4	T 8–10 W 8–10 F 6–8	$68
Slide Rule	PS	168	2	1	M 7	$15
Physics: Electricity, Sound & Light	PS	176	3	4	MW 8–10 Th 8–10	$68
Physics: Electricity, Sound & Light	PS	176	4	4	M 8–10 W 6–8 Th 8–10	$68
Instrumentation	PS	284	1	3	T 6–8 Th 8–11	$57
PLANT SCIENCE						
Intro. to Plant Life	PLSC	140	4	4	M 6:30–8 Th 6:30–11	$72
PSYCHOLOGY						
Elementary Psychology	PSY	120	3	3	MTh 8–9:30	$45
Abnormal Psychology	PSY	350	1	3	W 6:30–9:30	$45
Psychology of Adolescence	PSY	534	1	3	MTh 8–9:30	$54
SOCIOLOGY						
Social Problems	SOC	220	2	3	W 6:30–9:30	$45
SPEECH						
Principles of Speech	SPE	114	6	3	MTh 6:30–8	$45
ZOOLOGY						
Physiology: Brief Course	ZOOL	360	1	3	MTh 8–9:30	$45

PRACTICAL NURSING PROGRAM

The National Association for Practical Nursing Education defines a practical nurse as a person trained to care for selected subacute convalescent and chronic patients, and to assist the professional nurse in a team relationship, especially in the care of those more acutely ill. She provides nursing service in private homes and in institutions. She may be employed by the lay public, hospitals, or health agencies. A practical nurse works only under the direct orders of a licensed physician or the supervision of a registered professional nurse.

The program emphasizes the acquisition of skills in caring for the patient and assisting with the home and hospital duties associated with illness and convalescence. To the extent possible the skills and techniques are soundly grounded in understanding of the basic principles involved.

The course consists of 16 weeks of classroom and laboratory instruction at the Calumet Center followed by four 8-week periods at each of the four cooperating hospitals. All instruction is under the supervision of Purdue University working in cooperation with a Community Advisory Council. The program is accredited by the Indiana State Board of Nurses Registration and Nursing Education and by the National Association of Practical Nurse Education.

First Semester

			Class	Lab.	Fee
PN	8	Vocational Ethics and Personal Hygiene	6	0	$38
PN	16	Family Living	5	4	$74
PN	24	Nursing Care	5	11	$63

Second and Third Semester

			Class	Lab.	Fee
PN	44	Medical Clinical Experience. 8 weeks	4	36	$10
PN	56	Surgical Clinical Experience. 8 weeks	4	36	$10
PN	64	Maternity Clinical Experience. 8 weeks	4	36	$10
PN	72	Pediatrics and Long-term Illness Clinical Experience. 8 weeks	4	36	$10

DESCRIPTION OF COURSES

Courses numbered 1 to 499 are primarily for undergraduate students. Courses numbered 500 to 599 are for undergraduates (usually juniors and seniors) and graduate students. Courses numbered 600 and above are for graduate students.

For each course the first line of the description should be interpreted as follows: first, the official number of the course; second, its special title; and third, the number of class, laboratory, and credit hours. Under Agronomy, for example, the following line:

105. CROP PRODUCTION. Class 2, Lab. 2,
cr. 3.

indicates that the course AGRY 105, Crop Production, meets two hours each week for lecture, recitation, or class discussion, has a laboratory period of two hours each week, and yields three semester hours of credit.

DIVISION OF APPLIED TECHNOLOGY

ENGINEERING TECHNOLOGY

Professor Rountree in charge

Building Construction Technology (BC)

104. **PLAN READING.** Class 1, cr. 1.

Conventional representations as used in building trades, plans, and basic specifications: methods of showing plans, elevations, sections, and dimensions; symbols used to depict materials; definitions of common terms occurring on building plans; specifications as written for small buildings.

116. **ARCHITECTURAL DRAWING.** Lab. 6, cr. 2.

Introduction to architectural drawing, including use of instruments, lettering, orthographic projection, isometric views, and simple working drawngs.

Problems of wood frame structure, such as houses, details, and elementary design.

160. **FRAME CONSTRUCTION.** Class 1, Lab. 6, cr. 3. Must be preceded by BC 116.

Problems in frame construction, timber construction, laminated wood, and truss problems, as applied to large structures.

164. **BUILDING MATERIALS.** Class 3, cr. 3.

Properties and use of materials as found in building construction.

172. **SYSTEMS OF CONSTRUCTION.** Class 2, cr. 2.

Survey of different types of construction, including wood, steel, and reinforced concrete and curtain walls, considering the characteristics, advantages, and limitations.

204. **BUILDING REGULATIONS.** Class 2, cr. 2.

Building codes, ordinances, and regulations, with emphasis on those for structures in Indiana.

220. **CONCRETE AND MASONRY CONSTRUCTION.** Class 1, Lab. 6, cr. 3. Must be preceded by BC 116.

Preparation of drawings for light masonry structures, such as small buildings and stores; analysis of design, strength, and construction details.

236. **ARCHITECTURAL PROJECTIONS.** Lab. 6, cr. 2. Must be preceded by BC 156.

Introduction to projection, intersections, shading and shadows, and perspective drawing.

241. **ARCHITECTURAL DESIGN I.** Lab. 6, cr. 2. Must be preceded by BC 116 and BC 156.

Planning, development and architectural delineation of small structures; using pencil, charcoal and water color.

242. **ARCHITECTURAL DESIGN II.** Lab. 6, cr. 2. Must be preceded by BC 241.

Continuation of Architectural Design I with emphasis on large structures.

265. **STRUCTURES I.** Class 3, cr. 3. Must be preceded by DM 212 and Math 112.

Design of wood and steel frame structures.

266. **STRUCTURES II.** Class 1, Lab. 6, cr. 3. Must be preceded by Structures I (BC 265).

Design of wood and steel trusses.

276. **SPECIFICATIONS AND CONTRACT DOCUMENTS.** Class 2, cr. 2. Must be preceded by BC 156 and 220, GN 220.

Preparation of general conditions and major phases of building construction specifications, study agreements, contracts, liens, and bonds.

280. **QUANTITY SURVEY.** Class 2, Lab. 3, cr. 3. Must be preceded by BC 152, 164, and 216.

Approximate and detailed methods of estimating materials and labor required to erect a building.

284. **HEATING, VENTILATING, AIR CONDITIONING, AND ILLUMINATION.** Class 1, cr. 1.

Survey course of the different types of systems and their applications.

288. **ELEMENTARY SURVEYING.** Class 1, Lab. 3, cr. 2. Must be preceded by PS 164 or MA 112.

Plane surveying using 100-ft. steel tape, level, and transit.

Chemical and Metallurgical Technology (CM)

154. **INDUSTRIAL CHEMISTRY.** Class 3, Lab. 3, cr. 4. Must be preceded by PS 112, or MA 111 and PS 120.

Quantitative interpretations of chemical equations by numerical problems and practical application to industrial processes, using the principles of introductory chemistry.

184. **FERROUS METALLURGY.** Class 3, cr. 3. Must be preceded or accompanied by CM 154.

Appliances and methods used in the reduction, refining, and shaping of ferrous alloys.

212. **INDUSTRIAL CHEMISTRY: QUALITATIVE.** Class 1, Lab. 6, cr. 3. Must be preceded by PS 120 and 164 or MA 112.

Systematic semimicro analysis, with emphasis upon modern industrial techniques.

228. **PHYSICAL METALLURGY.** Class 3, Lab. 3, cr. 4. Must be preceded by CM 184 or PS 176.

Basic principles: solid solutions, intermetallic compounds, equilibrium diagrams, plastic deformation, recrystallization and grain growth, heat treatment, and phase changes in the solid state.

240. **HEAT TRANSFER.** Class 2, Lab. 3, cr. 3. Must be preceded by PS 164, or MA 112 and PS 176.

Fundamentals of heat transfer as applied to furnaces, heat exchanges, steam generators, cooling towers, evaporators, and distilling equipment.

252. **INDUSTRIAL CHEMISTRY: QUANTITATIVE.** Class 1, Lab. 6, cr. 3. Must be preceded by CM 212.

An introduction to gravimetric, titrimetric, and potentiometric methods applicable to modern industrial practices.

280. **NONFERROUS METALLURGY.** Class 2, cr. 2. Must be preceded or accompanied by CM 152.

Fundamentals of production metallurgy, with specific consideration of the methods employed in the reduction and refining of selected nonferrous metals.

284. **METALLOGRAPHY.** Class 1, Lab. 6, cr. 3. Must be preceded by CM 228.

Preparation and microscopic examinations of metals.

Drafting and Mechanical Technology (DM)

108. **TECHNICAL DRAWING.** Class 1, Lab. 6, cr. 3.

Introduction to technical drawing, including use of instruments, lettering, and orthographic projection. Preparation of working detail and assembly drawings, with emphasis upon industrial practices. Primarily intended to develop the basic skills and fundamentals of industrial drafting.

A basic course intended to develop special perceptive abilities.

156. **GRAPHICAL COMPUTATIONS.** Lab. 6, cr. 2. Must be preceded by DM 108 and preceded or accompanied by PS 164 or MA 112.

Descriptive and analytic geometry principles applied to the solution of engineering problems; intersections and development of planes and solids; layout of objects in space; and determination of clearances between objects in space.

180. **MATERIALS AND PROCESSES.** Class 3, cr. 3.

Application and characteristics, both physical and chemical, of the materials most commonly used in industry; the mechanical processes by which materials may be shaped or formed.

200. **ADVANCED MATERIALS AND PROCESSES.** Class 3, cr. 3. Must be preceded by DM 180.

A continuation of DM 180 with more emphasis placed on the newer materials and processes, specific machines needed to perform various operations, relative costs. Setting up production and process routing for various parts to be manufactured.

212. **MECHANICS OF MATERIALS.** Class 4, cr. 4. Must be preceded by PS 136 and 164 or MA 112.

Forces acting on rigid bodies at rest and in motion-embracing vectors, force and moment laws of equilibrium for various force systems, centroids, center of gravity and moments of inertia, stress and strain, riveted and welded joints, torsion, shear, bending and deflection of beams, combined stresses and columns.

216. **MACHINE ELEMENTS.** Class 3, cr. 3. Must be preceded by DM 200, and preceded or accompanied by DM 252.

A survey course of the more important elements used in machines, and their general characteristics as pertains to operational behavior, efficiency, and economy. Fundamental principles of tool and die design. Typical mechanisms used in machines, and their kinematic analysis.

220. ELEMENTARY MACHINE DESIGN. Lab. 6, cr. 2. Must be preceded or accompanied by DM 200 or 216.

This course is set up to include a minimum of strength calculations, and is directed toward the preparation of working drawings of machine elements. The student works from layouts with a minimum of information so that self-reliance in detailing may be developed. The course will include and emphasize the following: drafting simplification, functional dimensioning, working drawings, assembly drawings, correct detailing of machine elements, such as gears, cams, etc., working with manufacturers catalogs, realistic fits and tolerances, and kinematic layout.

224. MECHANICS: STATICS AND DYNAMICS. Class 4, cr. 4. Must be preceded by PS 136 and preceded or accompanied by PS 164 or MA 112.

Analytical and graphical studies of forces and motions acting on rigid bodies at rest and in motion-embracing vectors, force and moment laws of equilibrium for various force systems, friction, centroids, center of gravity, moments of inertia. Kinematics and kinetics of rectilinear, curvilinear, and rotational motion. Work, energy, power, impulse, and momentum.

252. STRENGTH OF MATERIALS. Class 4, cr. 4. Must be preceded by 224.

Stress and strain, riveted and welded joints, torsion, shear, bending and deflection of beams, combined stresses and columns.

292. APPLIED MACHINE DESIGN. Lab. 6, cr. 2. Must be preceded by 200, 216, 220, and 252.

Applications and utilization of the courses previously taken to complete basic and selective design problems. These problems will involve tool design, general machine design, piping design, and pneumatic and hydraulic systems. Emphasis will be placed upon designing for strength serviceability, economy, and reliability. The student will be required to start some problems from the sketching state and follow through to completion with such phases as layout, calculations, details, assembly, and bills of material.

294. MECHANICAL ANALYSIS. Class 4, cr. 4. Must be preceded or accompanied by DM 292.

The first part of this course will be devoted to force analysis and strength calculations on various representative machine members. The second part of the course will be devoted to general analysis of typical machines from the standpoint of force, motion, efficiency, serviceability, function, economy, lubrication, etc. Actual designs will be reviewed and discussed.

Electrical Technology (ET)

104. ELECTRONICS I—CIRCUITS. Class 3, Lab. 3, cr. 4. Must be preceded or accompanied by PS 176.

A study of the principles of operation and industrial applications of the more common types of vacuum and gas tubes, photo-electric cells, and cathode ray tubes. The simple basic circuits using these tubes are studied and their applications emphasized.

156. ELECTRONICS II—SEMI-CONDUCTORS; TRANSISTORS. Class 2, Lab. 3, cr. 3. Must be preceded by ET 104.

A study of the theory and application of transistors and other semi-conductors, with emphasis placed upon practical uses of these devices in industrial and communication circuits, including study of crystal diodes as detectors, diode power applications, and applications of transistors.

176. ELECTRICAL CIRCUITS. Class 3, Lab. 3, cr. 4. Must be preceded or accompanied by PS 164 or MA 112, and ET 104.

Nature of direct and alternating current electricity and practical applications of theory to concepts involving: resistance, simple circuits, power, power factors, reactance, impedance, simple DC and AC circuit calculations, and complex notation.

208. AC AND DC MACHINES AND CONTROLS. Class 2, cr. 2. Must be preceded by ET 156 and 176.

The elementary study of AC and DC machines and their controls. This includes accelerating relays, protective relays, circuit breakers, controllers, and contractors.

212. **ELECTRICAL MACHINES.** Class 4, Lab. 3, cr. 5. Must be preceded by ET 176.

Particular emphasis is placed on operational theory and application of both AC and DC machines in industry. Transformers and their roles in industry are studied, and industrial electrical systems are analyzed.

228. **POWER DISTRIBUTION.** Class 2, cr. 2. Must be preceded or accompanied by ET 212.

A study of the equipment used in transmission and distribution of electrical energy from generating station to consumer, including overhead and underground circuits, high and low voltage circuits, overload and short circuits, and indoor and outdoor lighting.

236. **ELECTRONICS III—RADIO CIRCUITS.** Class 4, Lab. 3, cr. 5. Must be preceded by ET 156.

Structural details and elementary principles of operation of rectifiers, amplifiers of various types, modulation, demodulation, receivers and their characteristics.

252. **ELECTRIC POWER BLUEPRINTS AND DIAGRAMS.** Class 1, Lab. 3, cr. 2. Must be preceded by DM 108, and preceded or accompanied by ET 268.

A practical study of symbols and standards used on electrical blueprints and wiring diagrams primarily for control circuits.

256. **ELECTRONICS IV—TRANSMITTERS.** Class 2, Lab. 3, cr. 3. Must be preceded by ET 236.

The study of transmitters, special circuits for wave shaping, filters, UHF, and transmission lines as used in UHF.

264. **ELECTRICAL MEASUREMENTS.** Class 3, Lab. 3, cr. 4. Must be preceded by ET 176.

A study of the principles of operation and the construction of direct and alternating current measuring instruments. Careful consideration is given to the choice of the best instruments, their possible errors, the means of calibration, and their correct use in industrial situations.

268. **CONTROL OF ELECTRIC MOTORS.** Class 4, cr. 4. Must be preceded or accompanied by ET 212.

Accelerating relays, protective relays, circuit breakers, controllers, and contactors used in industry are studied. Circuit diagrams for starting, accelerating, and regulating industrial drives are thoroughly analyzed. Controls for adjustable voltage systems are discussed. Dynamic crane and traction controls are included in this course.

272. **AUTOMATION AND ELECTRONIC CONTROL.** Class 4, Lab. 3, cr. 5. Must be preceded by ET 212 or 236.

A study of automatic control devices. Included are application of automatic feedback and regulating systems. Induction heating, resistance welding, process timing, motor controls, and associated circuits are also examined.

276. **ELECTRONIC TROUBLE SHOOTING.** Lab. 6, cr. 2. Must be preceded by ET 236 and 208 or 224.

Laboratory practice and the use of test instruments in methods of locating faults in AM and FM receivers, television, and industrial circuits.

General Studies (GN)

100. **TECHNICAL INSTITUTE ORIENTATION LECTURES.** Class 1, cr. 1. Required for all full-time students and must be taken first semester of enrollment.

The organization and services of the university related to the student. The relationships of the engineers, technicians, and tradesmen to one another and to industry. The development and function of the technical institutes and of the separate technologies. Guidance in adapting to the university and preparation for industrial jobs.

120. **PSYCHOLOGY.** Class 2, cr. 2.

Basic fundamentals of psychology and their application to industrial personnel problems. This course particularly serves as a basis for the consideration of human behavior problems confronting industrial supervision.

152. **FUNDAMENTALS OF TECHNICAL WRITING.** Class 2, cr. 2. Must be preceded by GN 104, or ENGL 101.

An introduction to technical writing, with emphasis on the techniques of composition and their implementation in letters, short reports, abstracts, etc.

204. **FUNDAMENTALS OF PRACTICAL SPEAKING.** Class 2, cr. 2.

Organization and presentation of material, voice and physical delivery, audience reaction.

220. **TECHNICAL REPORT WRITING.** Class 2, cr. 2. Must be preceded by GN 152.

Extensive application of the principles of good writing in industrial reporting, with emphasis on the techniques of presenting information graphically as well as in a clear, concise written form.

232. **DEMOCRATIC GOVERNMENT.** Class 2, cr. 2.

A study of the development of democratic government in the U.S. and other democratic areas of the world.

260. **ECONOMICS OF INDUSTRY.** Class 2, cr. 2.

Fundamental economics principles which affect everyone, with particular emphasis upon their application to industry.

264. **CONFERENCE SPEAKING.** Class 2, cr. 2. Must be preceded by GN 204.

Training and practice in conducting and participating in small group conferences, shop committees, instructional groups, problem-solving groups.

268. **ELEMENTS OF LAW.*** Class 3, cr. 3.

An introductory law course, with a brief comparison of the American federal system and the parliamentary system of government; and covering law, with emphasis on judicial review, court jurisdiction, and procedure generally and basic law in particular.

Industrial Technology (IT)

104. **INDUSTRIAL ORGANIZATION AND PRODUCTION.** Class 4, cr. 4.

A detailed survey of organizational structures; operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy, and human factors necessary for effective management.

152. **HUMAN RELATIONS IN INDUSTRY.** Class 2, cr. 2. Must be preceded by GN 120 and IT 104.

A study of industrial personnel problems. Relations of the supervisor and his men.

212. **INDUSTRIAL SAFETY.** Class 2, cr. 2. Must be preceded by IT 104.

Safety fundamentals as related to the economics of accident prevention, analysis of accident causes, mechanical safeguards, fire prevention, plant housekeeping, occupational diseases, first aid, safety organization, protective equipment, and the promotion of safe practices.

224. **PRODUCTION PLANNING AND CONTROL.** Class 3, Lab. 3, cr. 4. Must be preceded by DM 180 and IT 152.

Preproduction planning of the most economical methods, machines, operations, and materials for the manufacture of a product. The planning, scheduling, routing, and detailed procedure of production control.

227. **PRODUCTION PLANNING AND CONTROL.** Class 3, cr. 3. Must be preceded by DM 180 and IT 152.

Preproduction planning of the most economical methods, machines, operations, and materials for the manufacture of a product. The planning, scheduling, routing, and detailed procedure of production control. (Same as IT 224 without laboratory.)

244. **FUNDAMENTALS OF PRODUCTION COST.** Class 1, Lab. 3, cr. 2. Must be preceded by IT 104.

Fundamental mechanics (rules for debit and credit) of accounting, principles of account classification, business forms and procedures, financial and operating statements, and elements of cost accounting—all from the viewpoint of industrial organization.

248. **PRODUCTION COST ANALYSIS.** Class 1, Lab. 3, cr. 2. Must be preceded by IT 244.

Specific applications of production cost theories to principles developed through study of selected case problems.

260. **MOTION AND TIME STUDY.** Class 2, Lab. 3, cr. 3. Must be preceded by IT 152, DM 180, PS 164, or MA 112.

Techniques of motion and time study, process charts, operation charts, multiple activity charts, micromotion study, therbligs, and stop-watch time study.

268. **PLANT LAYOUT.** Class 2, Lab. 3, cr. 3. Must be preceded by DM 108, IT 224 and 260.

Arrangement of stock, machines, layout of aisles, and use of space, and material handling for the highest efficiency of production.

272. **JOB EVALUATION.** Class 2, cr. 2. Must be preceded by IT 152, PS 164, or MA 112.

A survey of the basic principles and significance of job evaluation. An analysis of current practices and techniques used in job analysis, job descriptions, and job evaluation.

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* GN 268, Elements of Law, may be substituted for GN 232.

280. **WAGE INCENTIVES.** Class 2, cr. 2. Must be preceded by IT 260 and 272.

An analysis and study of various types of wage incentive plans, their significance, adaptability, effectiveness, and equitability. A systematic appraisal of the basic objectives and currently used techniques in the administration of wage incentive programs.

296. **INDUSTRIAL TECHNOLOGY CASE PROBLEMS.** Class 2, cr. 2.

Application of theories developed in the several industrial technology courses to selected general case problems—to provide practice in the integration of principles.

312. **MATERIALS HANDLING.** Class 3, cr. 3. Must be preceded by IT 104.

A survey of materials handling elements, the unit load, packaging, bulk handling, the economics of materials handling, improving existing handling methods, justification for handling equipment, special handling techniques, and the management of the materials handling divisions in the industrial organization.

368. **LEGISLATION AFFECTING INDUSTRIAL RELATIONS.** Class 4, cr. 4.

Wage contracts and payments, workmen's compensation and insurance, injunction, strikes and boycotts, and statutes affecting labor.

Physical Sciences (PS)

120. **INTRODUCTION TO CHEMISTRY.** Class 2, Lab. 3, cr. 3. Must be preceded or accompanied by PS 112 and PS 100 or MA 111.

The general basic principles of chemistry, including a study of important elements and their simpler compounds. Special emphasis is placed on industrial applications.

136. **PHYSICS: MECHANICS AND HEAT.** Lect. 2, Rec. 2, Lab. 2, cr. 4. Must be preceded or accompanied by PS 112 and PS 100, or MA 111 and PS 168.

Work, energy, power, efficiency of simple machines; equilibrium conditions for solids, liquids, and gases; straight line and rotational motion—uniform and accelerated motion. Elementary principles of heat and their technical applications.

168. **SLIDE RULE.** Class 1, cr. 1. Must be preceded or accompanied by PS 164 or MA 112.

Use of the A, B, C, D, K, S, T, and CI scales in the solution of problems. Proper use of the rule and accuracy are stressed.

176. **PHYSICS: ELECTRICITY, SOUND, AND LIGHT.** Lect. 2, Rec. 2, Lab. 2, cr. 4. Must be preceded by PS 136, except ET students.

Fundamental principles of electricity, wave motion, sound, and light.

204. **FUNDAMENTALS OF QUALITY CONTROL.** Class 2, cr. 2. Must be preceded by PS 112 and 164, or MA 111 and 112.

Frequency distributions, normal curve, average standard deviation, standard error of the mean, $\bar{x}$ and R charts, "u" chart, rational sub-group, statistical aspects of tolerances, and the basic concepts of probability.

284. **INSTRUMENTATION.** Class 2, Lab. 3, cr. 3.

Basic principles of instruments selected. Care and use as found in industry for physical measurement.

Practical Nursing (PN)

8. **VOCATIONAL ETHICS AND PERSONAL HYGIENE.** Class 6, $38.

Designed to give the practical nursing student an understanding of ethical and interpersonal relationships with the patient, family, physician, professional nurse, and other coworkers. Includes development of an understanding of the patient's needs by making the student nurse aware of her own physiological, psychological, and community needs.

16. **FAMILY LIVING.** Class 5, Lab. 4, $74.

Deals with the basic principles for successful family life, with special emphasis on the role of the practical nurse when caring for a patient in his home. Stresses food preparation, meal planning and buying, serving of regular and special diets, budgeting, and organization of home duties in order to provide a clean and wholesome environment for the sick.

Includes normal child development and problems of the aged, with emphasis on the health needs of these two age groups, and the necessity for planned activities to give them security and enrich their lives.

24. **NURSING CARE.** Class 5, Lab. 11, $63.

Develop skills necessary to give nursing care to the subacute, convalescent, and chronically ill patient, together with an understanding of the basic principles involved. Demonstration and practice of nursing skills form a major portion of this course.

Knowledge of normal pregnancy and common illnesses is included, together with nursing measures required in these specific conditions.

44. **MEDICAL CLINICAL EXPERIENCE.** 8 weeks. Class 4, Lab. 36, $10.

Practical application of acquired nursing skills in the care of the medical patient in the hospital. Classroom instruction includes specialized medical techniques which have not been covered in the preclinical period.

This course is given at Methodist Hospital—Gary, Indiana.

56. **SURGICAL CLINICAL EXPERIENCE.** 8 weeks. Class 4, Lab. 36, $10.

Practical application of acquired nursing skill in the care of the surgical patient in the hospital. Classroom instruction includes specialized surgical techniques which have not been covered in the preclinical period.

This course is given at St. Catherine's Hospital—East Chicago, Indiana.

64. **MATERNITY CLINICAL EXPERIENCE.** 8 weeks. Class 4, Lab. 36, $10.

Practical application of acquired nursing skills in the care of mothers and newborn infants in the hospital. Includes two week's experience in the labor and delivery room. Classroom instruction includes specialized maternity and nursery techniques which were not covered in the preclinical period.

This course is given at St. Margaret's Hospital—Hammond, Indiana.

72. **PEDIATRICS AND LONG-TERM ILLNESS CLINICAL EXPERIENCE.** 8 weeks. Class 4, Lab. 36, $10.

Practical application of acquired nursing skills in the care of children and patients whose conditions require long-term hospitalization. Classroom instruction includes specialized nursing techniques, applicable to these patients, which were not covered in the preclinical period.

This course is given at St. Mary's Mercy Hospital—Gary, Indiana.

SCHOOL OF AERONAUTICAL AND ENGINEERING SCIENCES

Professor DeGroff in charge

205. **BASIC MECHANICS I.** Class 3, cr. 3 (3 ESE, 3 AE, 5 MTE). Must be preceded by MA 162.

Fundamental concepts, force systems, graphical representation of force systems, equilibrium, distributed forces, hydrostatics, virtual work, static stability, friction. First and second moments of areas, volumes, and masses, center of gravity. Application to structural and machine elements, such as bars, beams, trusses, cables, friction devices.

206. **BASIC MECHANICS II.** Class 3, cr. 3 (4 ESE, 4 AE, 6 MTE). Must be preceded by ESC 205 and MA 261.

Fundamental concepts, kinematics, translation, and rotation. Kinetics, impulse, momentum, work, energy. Rectilinear and curvilinear translation of point masses. Plane motion of rigid bodies and vibration. Application to projectiles, gyroscopes, machine elements, and other engineering systems.

FRESHMAN ENGINEERING

Professor Spalding in charge

100. **FRESHMAN ENGINEERING LECTURES.** Class 1, cr. 1.

An introduction to the engineering profession.

SCHOOL OF CHEMICAL ENGINEERING

Professor Golding in charge

203. **CHEMICAL ENGINEERING CALCULATIONS AND ELEMENTARY THERMODYNAMICS.** Class 3, Problem Lab. 2, cr. 4. Must be preceded by CHM 117 and 126 or equivalent and accompanied or preceded by MA 261 and PHYS 251.

Material, heat, and energy balances applied to batch and continuous chemical processes; thermodynamic concepts of energy, heat, work, system, state, and process; the first law of thermodynamics; properties and behavior of perfect gases.

SCHOOL OF CIVIL ENGINEERING

Professor Woods in charge

113. **SLIDE RULES AND GRAPHS.** Lab. 2, cr. 1. Must be preceded or accompanied by MA 112 or 151.

Principles and use of the slide rule for division, multiplication, trigonometry, powers, and roots. Properties and types of coordinate graphs for scientific and engineering purposes; calculation and plotting graphs: uniforms, log, semi-log, and others.

118. **ENGINEERING GRAPHICS.** Class 1, Lab. 6, cr. 3. Must be preceded or accompanied by MA 152 or 161.

Graphical methods used in engineering design, layout, and calculation. Multiview and pictorial drawing and sketching of technical objects; basic dimensioning practice; conventional representation.

SCHOOL OF ELECTRICAL ENGINEERING

Professor Jones in charge

203. **CIRCUITS I.** Class 4, Lab. 3, cr. 4. Must be preceded or accompanied by MA 261 and PHYS 261.

Fundamental properties of electric and magnetic circuits. Basic concepts, circuit elements, and source functions. Response of simple circuits. Transformations. Sinusoidal steady-state analysis.

204. **CIRCUITS II.** Class 4, Lab. 3, cr. 4. Must be preceded by EE 203 and preceded or accompanied by MA 262.

Continuation of EE 203. The complex-frequency plane, impedance and admittance functions, network analysis and theorems, nonsinusoidal periodic functions.

SCHOOL OF MECHANICAL ENGINEERING

Professor Chenea in charge

200. **THERMODYNAMICS I.** Sem. 2. Class 3, cr. 3 (4 ME). Must be preceded by MA 261.

First and second laws, entrophy, reversible and irreversible processes. Maxwell relations, and properties of pure substances and mixtures. To be offered for first time in second semester of 1961-62.

SCHOOL OF SCIENCE EDUCATION, AND HUMANITIES

Dean Ayres in charge

BIOLOGICAL SCIENCES

Professor Koffler in charge

Plant Sciences

140. **INTRODUCTION TO PLANT LIFE.** Class 3, Lab. 3, cr. 4.

Fundamental principles of the structure, function, and relationships of plans.

Zoology

160. **BIOLOGY OF ANIMALS.** Class 3, Lab. 3, cr. 4.

Basic biological principles of animals.

161. **GENERAL ZOOLOGY.** Class 2, Lab. 4, cr. 4.

Basic course in zoology for premedical students, those majoring in zoology, and others expecting to take ZOOL 162.

162. **COMPARATIVE ANATOMY OF VERTEBRATES.** Class 2, Lab. 6, cr. 4. Must be preceded by ZOOL 161 or equivalent.

Comparison of the structure of vertebrate animals; dissection of examples of the principal types.

260. **ANATOMY.** Class 2, Lab. 3, cr. 3. Must be preceded by BIO 101 and 102 or equivalent.

Lectures on anatomy as applied to the human body, with special emphasis on bones and muscles. Dissection of the cat and study of prepared skeletons.

360. **PHYSIOLOGY:** Brief Course. Class 3, cr. 3. Must be preceded by BIO 101 and 102 or equivalent.

Lectures, demonstrations, and textbook

work on the fundamental principles of the anatomy, physiology, and hygiene of the human body.

CHEMISTRY

Professor McBee in charge

Students expecting to major in chemistry or physics, and all engineering students, will take CHM 115 and 116, provided their preparation is adequate. Those with superior preparation may take CHM 117, followed by 118 or 126. Students with inadequate preparation will take CHM 100, 103, and 116.

100. **ELEMENTARY CHEMISTRY.** Class 3, cr. 3. Does not carry credit toward graduation in the schools of Engineering and Science, Education, and Humanities. Does not serve as a prerequisite to CHM 108, 110, 112, or 114.

An introductory chemistry course.

109. **GENERAL CHEMISTRY.** Class 3, Lab. 3, cr. 4.

Required of all freshmen in the prepharmacy option of the School of Science, Education, and Humanities.

110. **GENERAL CHEMISTRY WITH QUALITATIVE ANALYSIS.** Class 2, Lab. 6, cr. 4.

Continuation of CHM 109, with laboratory work in qualitative analysis.

111. **GENERAL CHEMISTRY.** Class 2, Lab. 3, cr. 3.

Required of all freshmen registered in the School of Agriculture, or in biology options of the School of Science, Education, and Humanities who are not in CHM 115 or 117.

112. **GENERAL CHEMISTRY.** Class 2, Lab. 3, cr. 3.

Continuation of CHM 111.

115. **GENERAL CHEMISTRY.** Class 3, Lab. 3, cr. 4.

Required for students majoring in chemistry and physics, and all engineering students. Students with superior preparation will take CHM 117, and students with inadequate preparation will substitute CHM 100 and 103 for CHM 115. Certain students whose work is unsatisfactory in CHM 115 may be given credit, with an appropriate grade, for CHM 100 and assigned to CHM 103 the following semester.

Laws and principles of chemistry, with special emphasis on topics of importance in engineering. Numerical problems and relationships are introduced whenever quantitative treatment is possible.

116. **GENERAL CHEMISTRY.** Class 3, Lab. 3, cr. 4.

A continuation of CHM 115.

226. **QUALITATIVE ANALYSIS.** Class 2, Lab. 6, cr. 4. Must be preceded by CHM 116 or 118.

Semimicro qualitative analysis for cations and anions.

227. **INTRODUCTORY QUANTITATIVE ANALYSIS.** Class 2, Lab. 6, cr. 4. Must be preceded by CHM 126 or 226.

Introduction to quantitative methods.

255. **ORGANIC CHEMISTRY.** Class 3, cr. 3. (op. H, el. S). Must be preceded by CHM 108, 110, 112, 116, or 118.

255L. **ORGANIC CHEMISTRY LABORATORY.** Lab. 3, cr. 1. (op. H, el. S).

Laboratory experiments to accompany CHM 255.

256. **ORGANIC CHEMISTRY.** Class 3, cr. 3. (op. H, el. S).

Continuation of CHM 255.

256L. **ORGANIC CHEMISTRY LABORATORY.** Lab. 3, cr. 1. (op. H, el. S).

Laboratory experiments to accompany CHM 256.

551. **ORGANIC CHEMISTRY.** Class 3, Lab. 5, cr. 4. Must be preceded by CHM 126, 223, or 226.

An elementary course covering aliphatic and alicyclic compounds, including about 20 laboratory experiments.

552. **ORGANIC CHEMISTRY.** Class 3, Lab. 5, cr. 4.

Continuation of CHM 551 covering aromatic compounds and special subjects.

ENGLISH

Professor Mills in charge

101. **ENGLISH COMPOSITION I.** Class 3, cr. 3. Prerequisite to all courses in English except ENGL 2, 3, 103, and 185.

Purpose: to develop competence in written expression through directed practice in writing. Emphasis on problems of mechanics and organization.

103. **ENGLISH COMPOSITION.** Class 3, cr. 3.

A composition course for freshmen provisionally excused from ENGL 101 on the basis of orientation tests. The course attempts to develop writing on a high critical level, improve reading tastes, and arouse an interest in the humanities and conflicting intellectual attitudes. Credit in the course may not be established by examination.

Students who receive grade C or better will be excused from ENGL 202 and given credit for ENGL 101; those who receive grade D must take ENGL 101 or 202, depending upon recommendation of the ENGL 103 instructor; those who fail to pass ENGL 103 must take both ENGL 101 and 202.

185. **DEVELOPMENTAL READING.** Lab. 2, cr. 1.

Purpose: to increase reading efficiency by improving comprehension and by developing the motor skills involved in reading speed. Motivates reading interest through use of films and pacers.

202. **ENGLISH COMPOSITION II.** Class 3, cr. 3. The second half of the basic composition course. Emphasis on problems of diction and logical analysis.

A student who has received a grade of A in ENGL 101 may, with the approval of the head of his school, substitute for ENGL 202 an elective course in English.

230. **INTRODUCTION TO LITERATURE.** Class 3, cr. 3. Not open to students with credit for ENGL 238.

Reading and discussion of major works in English, American, and continental literature to develop an understanding of style, form, and ideas characteristic of great works. Emphasis on types of narrative literature.

With ENGL 231 it satisfies literature requirement of School of Science, Education, and Humanities.

231. **INTRODUCTION TO LITERATURE.** Class 3, cr. 3.

Reading and discussion of major works in English, American, and continental literature to develop an understanding of style, form, and ideas characteristic of great works. Emphasis on various types of literature.

238. **INTRODUCTION TO FICTION.** Class 3, cr. 3. Not open to students with credit for ENGL 230.

Reading and discussion of selected short stories and seven novels, to promote awareness, understanding, and appreciation of the range, values, techniques, and meanings of reputable modern fiction.

250. **GREAT AMERICAN BOOKS.** Class 3, cr. 3.

Seven books, such as *The Scarlet Letter, Moby Dick,* and *Walden,* read and discussed as to their literary qualities and their cultural significance.

421. **BUSINESS WRITING: ENGINEERING APPLICATIONS.** Class 3, cr. 3. (el. 5, 6, 7, 8 ENGR).

Study of the types of letters and reports in engineering. Practice in their preparation. Consideration of the qualities found in engineering papers.

456. **AMERICAN HUMOR.** Class 3, cr. 3.

Humorous writings of the nineteenth and twentieth century are studied as to form and technique and also as a reflection of American life. Special emphasis on Mark Twain.

572. **THE AMERICAN NOVEL.** Class 3, cr. 3.

Reading and discussion of representative American novels from Hawthorne to Faulkner, emphasizing major trends in purpose, content, and technique. Supplementary lectures on background materials.

HISTORY, GOVERNMENT, AND PHILOSOPHY

Professor Ogle in charge

History

200. **EARLY CIVILIZATION.** Class 3, cr. 3.

A survey of European development from earliest times through the sixteenth century, this course is designed to meet the needs of the beginning student in European and world history.

201. DEVELOPMENT OF MODERN CIVILIZATION. Class 3, cr. 3.

A continuation of HIST 200, this course traces the expansion of Europe into the Americas, Africa, and Asia. The French Revolution, nationalism, and the development of Western European states from the sixteenth century to the present are studied.

204. AMERICAN HISTORY TO 1865. Class 3, cr. 3.

A study of the development of American political, economic, and social institutions from the early explorations and colonial settlements to the conclusion of the Civil War.

205. THE UNITED STATES AND ITS PLACE IN WORLD AFFAIRS. Class 3, cr. 3.

A study of the growth of the United States from the period of the Reconstruction to the present. The new industrialism, agrarian problems, territorial expansion, the two world wars, depression, the New Deal, and similar topics are analyzed.

Government

101. INTRODUCTION TO GOVERNMENT. Class 3, cr. 3.

The problems of government as illustrated by American national government. Attention to political theory as well as to the organization and problems of government.

331. INTERNATIONAL RELATIONS. Class 3, cr. 3.

Introductory survey of the underlying forces in international relations, the foreign policies of the great powers, and agencies of control and cooperation.

532. CONTEMPORARY INTERNATIONAL PROBLEMS. Class 3, cr. 3.

Current international issues and developments in international cooperation and world order.

Philosophy

310. INTRODUCTION TO PHILOSOPHY. Class 3, cr. 3.

The basic problems and types of philosophy, with special emphasis upon the problem of knowledge and nature of reality. May be applied toward meeting the philosophy requirement of the School of Science, Education, and Humanities.

311. ETHICAL AND AESTHETIC VALUES. Class 3, cr. 3.

An examination of the nature of moral values and a brief consideration of the basic problems involved in the philosophy of art. May be applied toward meeting the philosophy requirement of the School of Science, Education, and Humanities.

MATHEMATICS

Professor Chenea in charge

Students expecting to major in mathematics, physics, or chemistry, and all engineering students, will take MA 161, 162, 261, and 262. If their preparation is inadequate for this series of courses, they will take MA 151, 152, 162, 261, and 262.

2. PLANE GEOMETRY. Class 5, cr. 0. Credit, one unit for admission.

10. INDUSTRIAL MATHEMATICS I. Class 4, cr. 0.

Basic procedures in computation, elementary algebra, geometry of mensuration with applications.

20. INDUSTRIAL MATHEMATICS II. Class 4, cr. 0. Must be preceded by MA 10 or equivalent. Fundamentals of algebra with applications.

30. INDUSTRIAL MATHEMATICS III. Class 4, cr. 0. Must be preceded by MA 20 or equivalent.

Fundamental concepts and techniques of trigonometry and use in the solution of industrial problems.

111. ALGEBRA. Class 3, cr. 3.

112. TRIGONOMETRY. Class 3, cr. 3. Should be preceded by MA 111.

116. ANALYTIC GEOMETRY. Class 4, cr. 4. (Offered only by the Division of University Centers.)

Plane and solid analytic geometry.

121. GENERAL COLLEGE MATHEMATICS I. Class 3, cr. 3.

With MA 122 satisfies the core requirements for mathetmatics for the B.S. degree in the School of Science, Education, and Humanities.

122. GENERAL COLLEGE MATHEMATICS II. Class 3, cr. 3. Continuation of MA 121.

151. ELEMENTARY MATHEMATICS FOR ENGINEERING AND THE PHYSICAL SCIENCES I. Class 5, cr. 5, or Class 4, Lab. 2, cr. 5. For students with inadequate preparation for MA 161.

MA 151 and 152 cover in two semesters the material of MA 161 with more drill work and review of algebraic background.

Does not carry credit toward graduation in the Schools of Engineering.

152. ELEMENTARY MATHEMATICS FOR ENGINEERING AND THE PHYSICAL SCIENCES II. Class 5, cr. 5. Continuation of MA 151.

161. MATHEMATICS FOR ENGINEERING AND THE PHYSICAL SCIENCES I. Class 5, cr. 5, or Class 4, Lab. 2, cr. 5.

Required for students majoring in mathematics, physics, and chemistry, and all engineering students. Students with inadequate preparation will substitute MA 151 and 152 for MA 161. Certain students whose work is unsatisfactory in MA 161 may be given credit, with appropriate grade, for MA 151, and assigned to MA 152 the following semester.

Introductory course preparing for calculus.

162. MATHEMATICS FOR ENGINEERING AND THE PHYSICAL SCIENCES II. Class 5, cr. 5. Must be preceded by MA 152 or 161.

Analytical geometry and calculus.

241. CALCULUS I. Class 4, cr. 4. Must be preceded by MA 116. (Offered only by the Division of University Centers.)

242. CALCULUS II. Class 4, cr. 4. Must be preceded by MA 241. (Offered only by the Division of University Centers.)

261. MATHEMATICS FOR ENGINEERING AND THE PHYSICAL SCIENCES III. Class 4, cr. 4. Must be preceded by MA 162.

Analytic geometry and calculus.

262. MATHEMATICS FOR ENGINEERING AND THE PHYSICAL SCIENCES IV. Class 4, cr. 4. Must be preceded by MA 261.

Topics in calculus and differential equations.

421. DIFFERENTIAL EQUATIONS AND APPLICATIONS. Class 3, cr. 3. Not open to students with credit in MA 422. Must be preceded by differential and integral calculus.

Derivations and solutions of differential equations for problems in applied fields.

520. PARTIAL DIFFERENTIAL EQUATIONS AND APPLICATIONS. Class 3, cr. 3. Must be preceded by MA 421. (Students cannot use both MA 520 and 521 in any graduate program.)

Solution of boundary value problems using Fourier series, Bessel functions, Legendre polynomials; heat equation, wave equation, Laplace's equation.

525. APPLIED THEORY OF COMPLEX FUNCTIONS. Class 3, cr. 3. Must be preceded by MA 521, 541 or 544. (Students may not use both MA 522 and 525 in any graduate program.)

Primarily for students in applied science.

Fundamental operations on complex numbers and functions, power series, contour integration, conformal mapping. Applications to two-dimensional flow and potential theory.

MODERN LANGUAGES

Professor Hocking in charge

French

101. FIRST COURSE IN FRENCH. Class 2, Lab. 2, cr. 3. For beginners only.

Unless recommended by the head of the school in which the student is registered, a student may not apply toward graduation the credit for FR 101 without satisfactorily completing a more advanced course in French.

102. SECOND COURSE IN FRENCH. Class 2, Lab. 2, cr. 3. Must be preceded by FR 101 or equivalent.

Continuation of FR 101.

German

101. **FIRST COURSE IN GERMAN.** Class 2, Lab. 2, cr. 3. For beginners only.

Unless recommended by the head of the school in which the student is registered, a student may not apply toward graduation the credit for GER 101 without satisfactorily completing a more advanced course in German.

102. **SECOND COURSE IN GERMAN.** Class 2, Lab. 2, cr. 3. Must be preceded by GER 101 or equivalent.

Continuation of GER 101.

203. **THIRD COURSE IN GERMAN.** Class 3, cr. 3. Must be preceded by GER 102 or equivalent.

Readings from the works of nineteenth century and contemporary German writers; practice in speaking and writing German.

204. **FOURTH COURSE IN GERMAN.** Class 3, cr. 3 (op. or el.). Must be preceded by GER 203 or equivalent.

Continuation of GER 203.

Russian

101. **FIRST COURSE IN STANDARD RUSSIAN.** Class 2, Lab. 2, cr. 3. For beginners only.

Unless recommended by the head of the school in which the student is registered, a student may not apply toward graduation the credit for RUSS 101 without staisfactorily completing a more advanced course in Russian.

102. **SECOND COURSE IN STANDARD RUSSIAN.** Class 2, Lab. 2, cr. 3. Must be preceded by RUSS 101 or equivalent.

Continuation of RUSS 101.

Spanish

101. **FIRST COURSE IN SPANISH.** Class 2, Lab. 2, cr. 3.

For students who have had no previous work in Spanish. Those who have had previous work and whose placement tests do not qualify them for a higher course will be assigned to the review course SPAN 111.

102. **SECOND COURSE IN SPANISH.** Class 2, Lab. 2, cr. 3, $36. Must be preceded by SPAN 101 or equivalent.

PHYSICAL EDUCATION FOR MEN

Professor Mackey in charge

103. **PHYSICAL EDUCATION CURRICULAR ACTIVITIES.** Class 1, Lab. 4, cr. 3.

Theory and skill techniques in gymnastics, soccer, tennis, handball, and squash.

104. **PHYSICAL EDUCATION CURRICULAR ACTIVITIES.** Class 1, Lab. 4, cr. 3.

Theory and skill techniques in apparatus, tumbling, golf, volleyball, and badminton.

105. **PHYSICAL EDUCATION: ORIENTATION AND HISTORY.** Class 2, cr. 2. Not open to students who have credit in PEMN 101 or 102.

An introduction to physical education which deals with historical development and current trends in this and related fields.

112. **PHYSICAL ACTIVITIES.** Lab. 3, cr. 1.

151. **SPORTS OFFICIATING.** Class 1, Lab. 3, cr. 2.

Principles of officiating.

204. **PHYSICAL EDUCATION RHYTHMIC ACTIVITIES.** Class 1, Lab. 2, cr. 2.

Theory and skill techniques in group games, dancing, and other social activities.

PHYSICAL EDUCATION FOR WOMEN

Professor Hazelton in charge

100. **PHYSICAL EDUCATION.** Lab. 2, cr. 1.

A wide range of activities at varying levels of ability designed to develop recreational skills and interests and to contribute to the maintenance of physical well-being. Required of freshman and sophomore women for four semesters.

103. **PERSONAL HYGIENE.** Class 1, cr. 1. (Freshmen.)

Required for one semester of all freshman women and entering sophomores (sophomore 3) who do not have credit for an equivalent course. Orientation to health problems in college.

PHYSICS

Professor James in charge

152. MECHANICS. Class 3, Lect. Dem. 1, Lab. 2, cr. 4. Must be preceded or accompanied by MA 162.

Statics; uniform and accelerated motion; Newton's laws; circular motion; energy, momentum, and conservation principles; dynamics of rotation; gravitation and planetary motion; elasticity; simple harmonic and wave motion; hydrostatics; hydrodynamics; intermolecular forces.

220. GENERAL PHYSICS. Class 3, Lab. 3, cr. 4. Must be preceded by MA 111 and 112, or 121 and 122, or 101.

Mechanics, heat, and sound for students not specializing in physics.

221. GENERAL PHYSICS. Class 3, Lab. 3, cr. 4. Must be preceded by PHYS 220.

Electricity, light, and modern physics for students not specializing in physics.

251. HEAT, SOUND, AND ELECTRICITY. Class 5, Lab. 2, cr. 5. Must be preceded by PHYS 152.

Heat, kinetic theory, elementary thermodynamics, heat transfer. Sound. Electrostatics, current electricity, electrochemistry, electromagnetism, magnetic properties of matter, transient and alternating currents; thermionics.

262. OPTICS AND MODERN PHYSICS. Class 5, Lab. 2, cr. 5. Must be preceded by PHYS 251 or 261.

Radiations, the electromagnetic spectrum, geometrical and physical topics. Modern physics, relativity; quantum concepts, atomic and molecular spectra and structures; physics of the solid state; nuclear physics.

550. INTRODUCTION TO MODERN PHYSICS. Class 3, cr. 3. Should be preceded by at least one junior-level course in both mathematics and physics, or the equivalent.

Survey of the principles of modern physics and their application primarily to atomic and molecular systems, special relativity, quantum mechanics, kinetic theory, and quantum statistics; X-rays; and atomic and molecular spectra and structure.

556. INTRODUCTION TO NUCLEAR PHYSICS. Class 3, cr. 3. Must be preceded by PHYS 550, or taken by special arrangement.

Theory of relativity, elementary particles, structure of stable nuclei, radioactivtiy, interaction of nuclear radiation with matter, nuclear reactions, particle accelerators, nuclear instruments, fission, nuclear reactors, cosmic radiation and high energy physics, mesons, hyperons.

PSYCHOLOGY

Professor Asher in charge

120. ELEMENTARY PSYCHOLOGY. Class 3, cr. 3.

Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, attention, perception, learning, memory, and thinking.

235. CHILD PSYCHOLOGY. Class 3, cr. 3. Must be preceded by PSY 120 or its equivalent.

Age-level characteristics and needs of children from birth to the teens in motor control, language, learning, play, etc.; interpersonal relations and other factors affecting children.

340. GENERAL SOCIAL PSYCHOLOGY. Class 3, cr. 3. Must be preceded by six hours of psychology or three hours of psychology and three hours of sociology. GS 234 may be included as three hours of sociology. (Same as SOC 340.)

Conditions and consequences of human behavior in social situations, with emphasis upon the mechanism and the process on the bases of which socialization takes place.

350. ABNORMAL PSYCHOLOGY. Class 3, cr. 3. Must be preceded by six hours of psychology.

Various forms of mental disorders from the standpoint of their origin, treatment, prevention, social significance, and relation to problems of normal human adjustment.

534. PSYCHOLOGY OF ADOLESCENCE. Class 3, cr. 3. Must be preceded by six semester hours of psychology.

Development during the teens, with special reference to general life problems facing youth of these ages, and an investigation into ways and means of helping youth to meet its problems constructively.

537. MENTAL HYGIENE IN EDUCATION. Class 3, cr. 3. Must be preceded by PSY 120 and ED 285.

General principles of mental and emotional health and how to set up constructive conditions for the years of childhood and youth; the child in relation to parents, teachers, and children.

570. INDUSTRIAL PSYCHOLOGY. Class 3, cr. 3.

Introduction to psychology through the topics of individual differences, aptitude testing, merit ratings, industrial safety motivation, morale, and training.

577. HUMAN FACTORS IN ENGINEERING. Class 3, cr. 3. Designed primarily for students in engineering.

The relation of psychological variables to such engineering problems as the design of equipment, instruments, and man-machine systems, and to the development of work environments and of work methods.

SOCIOLOGY

Professor Christensen in charge

100. INTRODUCTORY SOCIOLOGY. Class 3, cr. 3.

A survey course designed to introduce the student to the science of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. A first course for sociology majors and a possible terminal course for nonmajors.

220. SOCIAL PROBLEMS. Class 3, cr. 3. Must be preceded by SOC 100 or GS 234 or equivalent.

Analysis of problem conditions in modern society—family disorganization, racial conflicts, class struggle, mental illness, narcotic addiction, gambling, alcoholism, and others. Social factors involved in the development, continued existence, and amelioration of these conditions.

SPEECH

Professor Monroe in charge

114. PRINCIPLES OF SPEECH. Class 3, cr. 3.

SCHOOL OF INDUSTRIAL MANAGEMENT

Dean Weiler in charge

ECONOMICS

210.* PRINCIPLES OF ECONOMICS. Class 3, cr. 3.

Study of the basic economic institutions, such as business, labor organizations, banks, and government. Analysis of the effects of competition, monopoly, and government on allocation of resources in production and consumption; factors affecting size and growth of national income.

212.* PRINCIPLES OF ECONOMICS. Class 3, cr. 3.

Continuation of ECON 210. Emphasis on more thorough understanding of basic principles, and their application to solving economic problems.

370. ELEMENTS OF ACCOUNTING I. Class 3, cr. 3.

Management uses of accounting; analysis and recording of business transactions; procedure for internal control; preparation and interpretation of comparative financial statements.

371. ELEMENTS OF ACCOUNTING II. Class 3, cr. 3. Must be preceded by ECON 370.

Continuation of accounting principles; special problems involving partnerships; accounting for corporation capital stock, surplus, cash stock dividends; bonds payable; manufacturing accounting, including a limited approach to cost methods, records, and statements; voucher system; installment sales; retail method of inventory; budgeting and executive control.

470. LEGAL BACKGROUND FOR BUSINESS. Class 3, cr. 3. Must be preceded by ECON 210, 213, or 310.

Nature and place of law in our society; social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on contracts.

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* ECON 210 and/or 212 will not be substituted for ECON 213 required in mechanical engineering.

FACULTY

Calumet Center

Hammond

ADAM J. ADAMS (1953)...........Lecturer in Engineering Technology
B.S., Notre Dame, 1952.

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B.A., Queen's (Canada), 1933; M.A., Toronto (Canada), 1939; B.PAED., M.Ed., 1942; M.Sc. Ed., Indiana, 1959; Ph.D., Northwestern, 1946; Ed. D., Indiana, 1960.

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